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American Railroad Journal.

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Saturday, April 12, 1851.

European and North American Railway.

SPEECH OF GENERAL DEARBORN.

In our paper of the 1st of February last, we prepared for publication the speech of Hon. H. A. S. Dearborn, of Massachusetts, delivered at the great Convention held at Portland in aid of this project, on the 31st of July last. By an unfortunate oversight, a portion of the speech was entirely omitted. We were very much annoyed at the mortifying blunder, and we take the only means in our power to correct it, by publishing it again, which we hope General Dearborn will receive as a sufficient apology.

Among the fine things said at the Portland Convention, we think it may be safely asserted that the speech of the Hon. H. A. S. Dearborn, of Massachusetts, bore off the palm. The long public services of Gen. Dearborn, his invaluable experience in all the great questions of public improvement in Massachusetts, his varied attainments in many departments of scientific enquiry, especially in those of physical geography and commercial statistics, gave much force to his remarks. We have been told by more than one gentleman present, that his allusion to the public services and hardships of Admiral Owen was the finest specimen of stage effect ever produced.

We think the allusion to the great statesman and benefactor of the Empire State, ought not to be forgotten, at least upon the men of our day. Is it not due to the memory of Clinton, that a fitting memorial should place the record of his achievements beyond the reach of forgetfulness. Gen. D. spoke in substance as follows:

I feel utterly unable to occupy so large a space as is opened by the Resolution before us—a resolution to establish a highway that is to become the connecting link, and the great thoroughfare, between two continents, to do it well, to do it speedily. I feel satisfied that it *can* be done; I feel satisfied that it *will be done*—and that, old as I am, I may yet pass over it; that, if the Lord spares my life for five years, I may go to St. John, to Halifax, to Ireland, to London; and crossing from Dover to Calais, I may go from thence by railway to the furthest extremity of Europe. [Cheers.] This may, by some, be deemed extravagant; but already the necessary steps have been taken for the construction of a railway from Calcutta to Bombay. The route from Calais to the Bosphorus may be considered as certain, within a less number of years than I have indicated. Nor shall this highway of nations stop there; for I believe that some Stephenson may yet arise, to throw an iron arch across the Strait between Europe and Asia; and that a visit to the Euphrates may be, to the traveller, but an ordinary excursion. [Cheers.]

It is but twenty-five years since I proposed that a railroad should be constructed from Boston to the Hudson; and that a tunnel would be made through the Hoosic Mountain; for this I was termed an *idiot!* An idiot I may be; but the road is made, and the tunnel through the Hoosic Mountain is in course of construction. [Cheers.] Formerly, scientific men dealt in abstract theories; now, we find the workmen themselves entering into the halls of science, illustrating theory by practice, and teaching knowledge to the world. The time was when weaving was a mystery; dyeing was one of the occult sciences; and even the manufacture of soap depended upon good luck for a favorable result.—But, by the help of practical science, all these matters are now reduced to a certainty.

Gentlemen—I feel satisfied that this railway *must* be constructed. It is true, there are not wanting those who doubt of its success. But let not this deter you. There are not wanting those who will doubt that the sun shines at mid-day, unless they can see it for themselves.

Gentlemen—If all do not comprehend the importance, the practicability, and the profit of this great project, there are enough who do comprehend, to carry the measure to a successful termination. It was forty years after the discovery, by Newton, of the theory of gravitation, before it could be comprehended; now it is practically understood by every school boy. It is but twenty years since the British nation sustained the loss of their statesman, Huskisson, struck down by a car in England, in the first passenger train that passed over its iron rails; but now railways have become the ordinary means of traffic and transportation. We dare even to propose a line to the Pacific; and it is as certain that that line will be constructed, as that the line now in contemplation will extend to the Atlantic shores of Nova Scotia. [Cheers.]

I well remember when the construction of a railway, three miles in length—from a granite quarry in Quincy to Boston bay—was projected; it was esteemed a wonderful undertaking, and looked upon as wild and chimerical. Now, there are over 7,000 miles of railroad in the country. These, connecting with the present vast projects, will almost entirely encircle the world. And these plans will be accomplished, either with the aid of governments, or in spite of them, for it is not in their power to stop them.

All history and all experience show that the necessities of commerce seek out the nearest and shortest routes for travel and business. Calais and Dover have been the points of embarcation, ever since the invasion of Cæsar; and for no other reason but because they were the nearest points between the Island of Great Britain and the continent of Europe. Cape Sunium was the point of concentration for the trade of Greece, simply because it was the nearest point to Egypt.

Why was the Appian Way extended from Capua to Brundusium, on the Adriatic Gulf? Because that was the nearest good harbor near the narrowest place in the Adriatic Sea, in the most direct line from Rome to Constantinople.

Why was the suspension bridge of Telford extended across the Menai Strait, to the Island of Anglesey; and the still more wonderful work of modern times—the Brittania Bridge across the same Strait? Because it was in the most direct line from London to Dublin and Ireland.

If you will examine the map of the world, you will find that in all time past, the points of continents or islands which approach the nearest, have become the highways of their intercourse and commerce. It is for this reason that I believe that the highway for the trade and communication between this country and Europe must be made to the eastern coast of Nova-Scotia. [Cheers.]

We read in ancient history, that Cato once produced before the Roman Senate a bunch of fresh figs, taken from a tree in Carthage only four days before; and I shall see the time when the Rose of England, blending the colors of York and Lancas-

ter, and plucked from the garden of Windsor, shall be twined freshly in America with the beautiful prairie flower "the Queen of the West" and, bound together with the Lilies of Canada, shall compose a fragrant wreath, wherewith to crown the Statue of Concord in the Temple of Peace! [Tremendous applause.]

Look at the map of America and see who will be benefited by the completion of this undertaking?—all of us—from the country bordering on the waters of the St. Lawrence and on the Lakes of Canada, to the fertile valleys of the Mississippi and its tributary streams. There are no less than fifteen States of this Union directly interested in the line, and there are millions upon this territory who will be rejoiced at the prospect opened before them. Fifteen years ago, there was one small schooner for passengers on Lake Erie belonging to the Americans—now the country is intersected by railways, and the Lakes are covered with steamers. Then we were more widely separated from the inhabitants on the borders of these Lakes than we are now from Hindostan. [Cheers.]

But not only will the world be benefited by the productions of these fertile districts being widely distributed, but by freedom of intercourse asperities and misunderstandings between great nations will be softened and removed, and at all events a firm and lasting friendship will be produced between two great nations, speaking the same language, and advocating the same principles of civil and religious liberty; proud am I that the bones of my ancestors lie buried within the shadow of the Cathedral of Exeter; and there is not one worthy descendant of the heroes of Runnymede, wherever he may dwell, that I do not look upon as a brother. [Prolonged cheers.]

The destiny of the Anglo Saxons has but commenced, and more has been done by them for the world, for the common cause of humanity, since my boyhood, than during all time preceding. Man is learning to imitate his Maker, and to do good unto all; there is no time for vice; occupation of the body and the mind is necessary for the age in which we live. Could the commerce and industry of England have been fostered and protected but for the honesty and integrity of her Statesmen? She has taught the nations that right and justice must be done, and where ever, at home or abroad, the flags of England and America float upon the breeze, there her subjects and our citizens, and all speaking our common language, are protected from insult and from wrong. [Cheers.]

To project and to execute works of the description of this, which we are now considering, are among the greatest of public achievements. Our ablest Statesmen have always considered the construction of roads as the means of diffusing knowledge and of increasing the comfort, wealth, and happiness of our country. No sooner was peace declared than George Washington devoted his time, talents and industry to the subject. Gallatin, and other able Statesmen, have expressed the same principles and acted upon them; and in more recent times companies of wealthy and energetic men have carried out the plans which Washington and Gallatin so ably designed and projected. [Cheers.]

I was on the spot where the city of Buffalo now stands, when it was a mere village; and twenty-five years ago it was an inconsiderable town of about 5,000 inhabitants. It is now a city numbering 50,000 people. When De Witt Clinton first opened his great canal to Buffalo, that was almost the extent to which travellers could go west; and the trade was of scarcely any moment, except in furs and in the productions of the forest. Now, it is on the way to the granary of the earth; and the trade which reaches the Erie Canal, from beyond it, is far greater than all it receives this side of Buffalo. A few years ago, standing on one of the Piers at Buffalo, and looking out upon the vessels that moved upon the Lake, and looking back upon the city, spreading itself upon the shore behind me, I felt something of a patriotic sentiment arising within me, when I thought how much was due to his memory. I thought if I could have my way, a collossal statute of Clinton should be raised upon the pier that projects farthest into the Lake,—in the left hand holding a scroll pointing down the line of the Erie Canal—the right hand pointing westward to the Pacific shores. [Tremendous cheers.]

The project we are now considering is one of equal importance and the accomplishment of which will confer equal honor upon its authors. Vast as the enterprize is, it can still be accomplished.

We must prove that this work CAN BE DONE,—that it WILL BE USEFUL,—that it WILL BE PROFITABLE; and if this can be done, we need not fear that the means will be wanting.

The public mind is already in a great measure prepared for the proper appreciation of a scheme of this international character. If twenty-five years ago, a British Statesman had risen in his place in Parliament, and proposed to throw an iron bridge across the Menai Strait, at a cost of two millions, I have no doubt that some benevolent physician would have been ready with a certificate of lunacy, and that the gentleman who should be so rash and credulous as to propose this, and to believe in the possibility of its accomplishment, would have been promptly provided for in an hospital for the insane! Now we have dared to propose far mightier projects—we would lay the iron rail across the broad continent of America, and would stand upon the shores of the Pacific! But think you we shall only stand upon its shores? No; we must build ships and cross the waters to the far distant shores of China, and shall carry the productions of that country back to us and to you, at its antipodes. [Cheers.]

Gentlemen, I am proud to see among us a gentleman of the naval service of Great Britain*—one who has earned a higher reputation than that which follows upon victory. Some fifteen years since, a work was put into my hand by a friend—A Survey of the Coast of Africa and the Persian Gulf, by a British Naval Officer—it was a scientific and pacific labor; but the service was one of difficulty and danger, far more appalling than the battles of the Nile or of Trafalgar. Sickness and death came upon their expedition, recruits were obtained from England, but man after man fell victims to the fatal disease, until, at the close of the expedition, he alone of all that first went out upon it, he, of officers and men, was the sole survivor! I thought, if I were Sovereign of England, I would make him an Admiral of the White, under the Banner of Peace! This duty was nobly done, and many other duties has he since done for his country, and yet, although time has impaired his strength and frosted his venerable head, you see, gentlemen, that he cannot remain, but has left his home, in the British Provinces, and is here amongst us, ready at the call of his country and of the world, in the front rank of this our enterprise. [Tremendous cheers.]

The speaker closed his remarks, of which the reporter has given but the faintest outline, with a beautiful sentiment of fraternal affection towards the delegates from the Provinces; and concluded by expressing the prayer, that God would give them glory, peace, riches, and happiness.

Upon the conclusion of the speech, Mr. WILMOT sprang to his feet, and proposed three cheers for Gen. Dearborn, which were given with the most hearty enthusiasm. The speech was a most beautiful and eloquent production; and so pleased with it were the delegation from New Brunswick, that they called upon Gen. D. in a body, to express to him their admiration.

Three hearty and generous cheers were proposed and given to Rear Admiral Owen.

From Appleton's Mechanics' Magazine.

The Application of Iron to Railway Structures.

Continued from page 213.

In the third series, comprising ten experiments, the bars employed were 9 feet long between supports, 4 inches broad, and 1¼ inch deep, being calculated to break with the same statical pressure as the bars used in the *second series*, but being more flexible. The statical breaking weights were 3968 pounds, and 4332 pounds; the greatest observed deflection (produced by 3968 pounds,) 4·56 inches, and 3·96 inches. By giving to the load a velocity of 15 feet per second, the breaking-weights became 3296 pounds, and 3303 pounds; maximum observed deflection 4·85 inches. With a velocity equal to 29 feet per second, the breaking weight was reduced to 2670 pounds, and the maximum deflection was 4·14 inches. At 36 feet per second, a load of 2176 pounds broke one of the bars in one experiment, and 2060 pounds broke both the bars in another experiment: greatest observed deflection 3·88 inches. At 43 feet per second, 1778 pounds broke both bars, the greatest deflection being 1·54 inch.

In the fourth series, comprising four experiments, the bars used were of Clyde iron (No. 3,) 9 feet long, 2 inches broad, and 3 inches deep. The statical deflection produced by 1120 pounds was ·16 and ·17 inch; statical breaking weights 9882 pounds, with ultimate deflection of 1·91 inch, and 9882 pounds, with ultimate deflection of 2·33 inches. With a velocity of 43 feet per second, a load of 3614 pounds pounds produced a deflection of 1·54 inch (the statical deflection of 3643 pounds being only ·61 inch,) and a load of 2996 pounds produced a deflection of 1·14 inch, while its statical deflection, as proved by bringing it again to a state of rest, was only ·52 inch.

Three series of experiments were conducted on bars 9 feet long between the supports, showing the amount of deflection obtained when the weight is brought on suddenly without impact, and also the breaking weights. The results are as follows:—

First Series. Bars of 9 feet long, 1 inch broad, and 2 inches deep. Mean weight of bars, 66·5 lbs.

Velocity in feet per sec...	0	15	24	29	33	36
Mean breaking weight in lbs. pr. pair of bars.	2281	1842	1523	1216	1213	1176

Second Series.—Bars, 9 feet long, 1 inch broad, and 3 inches deep. Mean weight of bars, 93·5 pounds.

Velocity in feet per second.....	0	15	29	36	43
Mean breaking weight in lbs.....	4235	3400	3044	2406	2182

Third Series.—Bars, 9 feet long, 4 inches broad, and 1½ inch deep. Mean weight of bars, 195 pounds.

Velocity in feet per second.....	0	15	29	36	43
Mean breaking weight in lbs.....	4150	3299	2670	2118	1708

Experiments on Railway Bridges to ascertain the increase of deflection produced by the velocity of the load.—The only actual trials of bridges which the commissioners made to determine the effect of velocity in augmenting deflection, were upon two bridges erected upon the Croydon and Epsom, and South Eastern railways, and known as the Ewell Bridge, and the Godstone Bridge, each of which supports the railway over a road.

"A scaffold was constructed, which rested on the road, and was therefore unaffected by the motion of the bridge, and a pencil was fixed to the underside of one of the girders of the bridge, so that when the latter was deflected by the weight of the engine or train, either placed at rest or passing over it, the pencil traced the extent of the deflection upon a drawing board attached to the scaffold. An engine and tender, which had been in each case liberally placed under our orders by the directors of the companies, were made to traverse the bridges at different velocities, or rest upon them at pleasure. The span of the Ewell Bridge is 48 feet, and the statical deflection due to the above load rather more than one fifth of an inch. This was slightly but decidedly increased when the engine was made to pass over the bridge, and at a velocity of about 50 miles per hour, an increase of one-seventh was observed. As it is known that the strain upon a girder is nearly proportioned to the deflection, it must be inferred, that in this case the velocity of the load enabled it to exercise the same pressure as if it had been increased by one-seventh and placed at rest upon the centre of the bridge.—The weight of the engine and tender was 39 tons, and the velocity enabled it to exercise a pressure upon the girder equal to a weight of about 45 tons."

Ewell Bridge [Epsom and Croydon railway.]—Span 48 feet. Two girders to support each line of rails. Depth of girders at centre, 3 feet 6 inches. Width of bottom flange, 20 inches; thickness of ditto, 3 inches. Weight of two girders, 20 tons. Weight of platform between these girders, 10 tons. Total weight of half the bridge, 30 tons. Weight of engine, 25·2 tons; weight of tender, 13·8 tons. Total, 39 tons.

Velocity in feet per section.....	0	25	30·9	32·3	53·7	75·
Deflection in decimal parts of an inch.....	·215	·215	·230	·225	·245	·235

The commissioners remark, that "the deflections do not increase steadily; but this could hardly be expected, from the many causes of disturbance."

Godstone Bridge [South Eastern railway.] Span 30 feet. Three girders support the roadway.—Depth of girders at centre, 3 feet. Width of bottom flange, 15 inches; thickness of ditto, 2¼ inches. Weight of two girders, 15 tons. Weight of platform between these girders, 10 tons. Total weight of half the bridge, 25 tons. Weight of engine, 21 tons; weight of tender, 12 tons. Total, 33 tons.

Velocity in feet per second.....	0	22	40	73
Deflection in decimal parts of an inch.....	·19	·23	·22	·25

The remainder of appendix B consists of records of some miscellaneous experiments, comprising a series, made by statical pressure, on the strength of rectangular bars of cast iron, and others with the cam, &c., by Capt. H. James, R.E., F.R.S.—The records of these experiments are tabulated, and the actual mean reduced breaking weights shown in juxtaposition with the calculated breaking weights as obtained from Barlow's formula—

$$s = \frac{l\,w}{4\,a\,d^2} = 7620$$

and from the formula given in Hodgkinson's edition of "Tredgold:"

$$w = \frac{4{\cdot}5 \times b\,d^2\,s}{l}$$

the value of s having been obtained by these writers from the breaking weights of each kind of iron, in bars 1 inch square, and 4 feet 6 inches long. This comparison distinguishes the kind of iron experimented upon, and confirms the value of mixing and remelting in order to obtain the strongest quality of metal. This table is valuable as showing how far dependence may be placed upon calculations of the strength of iron as deduced from experiments made on a small scale.

The experiments made with the cam, &c., were devised to ascertain the effect produced upon iron bars by reiterated strains, corresponding to loads equal to some fractional part of the breaking weight. The cams were worked by steam machinery, and the bars depressed and restored to their original position for a great number of times. Two cams were employed, one of which imparted vibratory motion to the bar during the deflection, the other gently depressed the bar, and suddenly released it when the full deflection had been obtained. From 4 to 7 depressions were made per minute. Three bars tested by the former apparatus to a deflection equal to one-third of the statical breaking weight obtained from similar bars, suffered 10,000 depressions, and afterwards required as much to break them as similar bars subjected to dead weights only. Of two bars subjected to a deflection equal to that due to half the breaking weight, one was broken by 28,602 depressions, and the other sustained 30,000, and did not appear thereby weakened in its resistance to statical pressure. Of the bars tried with the second cam, three sustained 10,000 depressions, each giving it a deflection equal to that produced by one-third of the statical breaking weight, without suffering any apparent loss of power to resist statical pressure; one broke with 51,538 depressions; and one bore 100,000 without any apparent loss of strength. Three other bars, deflective by the same cam to one-half the extent liable to be produced by the statical breaking weight, broke with 490, 617, and 900 depressions respectively. "*It must, therefore, be concluded, that iron bars will scarcely bear the reiterated application of one-third their breaking weight without injury.*" A bar of wrought iron 2 inches square in section, and 9 feet long between the supports, was subjected to 100,000 depressions by means of the first mentioned or rough cam, each depression producing a strain corresponding to about five-ninths of the strain that permanently injured a similar bar. These depressions only produced a permanent set of ·015 inch. Three wrought iron bars were subjected to 100,000 depressions each, from the step cam, depressing them through 333 in., ·666 in., and ·833 in. respectively, without producing any perceptible permanent set. A bar, depressed through 1 in., obtained a set of ·06 in. and one depressed 300 times through 2 in.; acquired a set of 1·08 in. The largest deflection which did not produce any permanent set, appears, by an experiment on a similar bar, to be that due to rather more than half the statical weight which permanently injured it. A small box-girder, of boiler plate riveted, 6 in. × 6 in. in section, and 9 feet long, was also subjected to depressions by means of the rough cam, principally with the view of ascertaining whether any effect would be produced on the rivets by the repeated strain; but a strain corresponding to 3,752 lbs., repeated 43,370 times, did not produce any appreciable effect.

Of the evidence given by the several witnesses, it is impossible, within our limits, to present any useful abstract.

The several appendices, accompanying the report, contain very interesting experiments by Mr. R. Stephenson, Mr. Rastrick, Mr. Fairbairn, Mr. Barlow, and others, some of which are to be esteemed as useful accessions to the records of the properties of iron; and we heartily recommend it to "the profession" as the best work of the kind in print, and a valuable auxiliary to our present stock of knowledge on this most important subject—the properties of iron.

From the Merchant's Magazine.

Internal Improvements of the State of New York.

A SKETCH OF THE RISE, PROGRESS, AND PRESENT CONDITION OF INTERNAL IMPROVEMENTS IN THE STATE OF NEW YORK.

Continued from Page 165.

TOLLS AND TONNAGE OF THE CANALS.

The reports of the officers in charge of the public works furnish accurate statements of the revenues derived from the canals, from 1820, when the middle section of the Erie Canal was opened for navigation, to the present time; but this is not the case in respect to the tonnage or trade of the canals. In the first instance, the Collector at Rome kept an account of the articles passing that place. Afterwards, and until 1834, a statement was kept of the articles passing Utica, without discriminating between the products coming to market, and the merchandise going west. For three years, from 1824 to 1826, the Collector at West Troy kept an account of the articles passing on the Junction Canal—that is, the canal from the point where the Erie and Champlain canals unite, near Cohoes, to Albany. For 1827 there is no account of property coming to, or going from tide-water. For the next two years statements are given of the merchandise going from tide-water, but none in regard to products coming to market. In 1830 the number of tons going up both canals is given, but the tonnage coming to market is limited to the quantity delivered at Albany. Then there is a blank of three years in the articles coming to tide-water, and of one year (1832) in the merchandise going from the Hudson. For these years we have the statements of articles passing Utica, which exhibit the magnitude of the canal business passing at that time, but which does not afford the means of a satisfactory comparison in respect to the growth of a traffic with the west and north, and of the quantity coming to and going from market.

In 1834, fourteen years after the commencement of navigation on the Erie Canal, and eight years after its completion, Mr. Flagg examined the documents and attempted to bring together the statements of tonnage which he found scattered through the various reports of the preceding fourteen years. These are given in tables appended to the report of the commissioners of the canal fund for 1835, (Senate Doc., No. 58,) with such facts in relation to the trade and tonnage of the canals as were procured from the collectors of tolls at Albany, Troy, Buffalo, Utica, Oswego and Whitehall. In 1834 circulars were sent from the canal department to all the collectors of tolls, requiring them to keep statistical tables, which would show the quantity and kind of property first cleared by them, and the same in relation to property left at the place where the office is located, or at any point short of a neighboring office. And as stated in the report of 1836, (Senate Doc., No. 70, p. 3,) "to insure uniformity in the mode of keeping the tables, George W. Newill, second deputy of the collector in the canal department, who had prepared the forms of the tables, and was familiar with their details, visited each collectors office in the state, and gave such explanations as were needed, to insure accuracy in the returns." Mr. Newell, who was clerk of the canal board, from its first organization, in 1826 to 1848, with the exception of about three years, continued to extend the field of inquiry, and to improve the mode of keeping the tables, until they now number seventy-four, and fill a volume of 200 pages, embodying a vast amount of information respecting the trade of the canals, the price of transportation, and of products, the tonnage of boats; and all prepared with the greatest care and fidelity. A large portion of the tonnage is ascertained from actual weight by the scales; and where estimates are made, this is done by established and uniform rates, and a close approximation to accuracy.

In the following table is given, as far as practicable—1. The amount of tolls collected on all the state canals, from 1820 to 1850. 2. The number of lockages on the Erie canal at Alexander's lock, three miles west of Schenectady, for each year. 3. The number of lockages on the Champlain canal, at its junction with the Erie. 4. The number of boats arriving at, and departing from Albany and Troy, on both canals. 5. The number of tons coming to the Hudson River on both canals. 6. The number of tons going from tide-water in each year, being principally merchandise.

	Tolls on all the canals.	Lockages on the Erie Canal	Lockages on Ch'mplain.	No. of boats to and from tide-water.	Tons coming to tide-water on both canals.	Going from tide-water.
1820	$5,244	.....	.....	.....	.....	.....
1821	24,388	.....	.....	*2,731	.....	.....
1822	64,072	.....	.....	.....	.....	.....
1823	153 099	.....	.....	.....	.....	.....
1824	340,761	6,166	.....	†8,760	157,446	32,385
1825	566,279	10,985	.....	13,110	185,405	33,438
1826	765,104	15,156	.....	.....	269,795	34,086
1827	859,260	13,004	.....	.....	.....	.....
1828	838,447	14,579	.....	23,662	.....	54,622
1829	813,137	12,619	.....	21,490	.....	48,993
1830	1,056,922	14,674	.....	23,874	‡182,000	66,626
1831	1,223,801	16,284	.....	26,882	.....	83,893
1832	1,229,483	18,601	.....	25,820	.....	.....
1833	1,463,715	20,649	.....	31,460	.....	107,249
1834	1,340,106	22,911	.....	32,438	553,596	114,608
1835	1,548,108	25,798	11,969	36,690	753,191	128,910
1836	1,614,342	25,516	11,248	34,190	696,347	133,796
1837	1,292,629	21,055	.....	31,082	611,781	122,130
1838	1,590,911	25,962	.....	33,120	640,481	142,808
1839	1,616,382	24,234	.....	31,882	602,128	148,485
1840	1,775,747	26,987	.....	30,456	669,012	129,580
1841	2,034,882	30,320	.....	33,782	774,334	162,715
1842	1,749,197	22,869	8,813	32,840	666,626	123,294
1843	2,081,590	23,184	8,164	32,826	836,861	143,595
1844	2,445,761	28,219	10,099	38,786	1,019,094	176,737
1845	2,645,931	30,452	8,647	40,094	1,204,943	195,000
1846	2,755,593	33,431	9,771	42,936	1,362,319	213,795
1847	3,634,942	43,957	10,174	51,634	1,744,283	288,267
1848	3,252,184	34,911	9,165	43,018	1,447,905	329,557
1849	3,268,226	36,918	10,397	46,520	1,579,946	315,550
1850	3,273,899	38,444	12,861	.....	2,033,863	.....

The quantity in the column "going from tide-water," from 1824 to 1833, does not include salt, wheat and flour, or provisions, coming from the west and going up the Northern canal to Lake Champlain. The salt ranged from 7,000 to 15,000 bushels per annum. In 1833 and 1834 the flour and wheat was equal to 115,000 barrels of flour for the two years.

The tolls of 1849, when compared with those of 1832, show an increase of a fraction more than 165 per cent, and this notwithstanding the rates of toll were reduced in 1833-4 more than 35 per cent., and

* This is the number of boats which passed Rome in 1821.

† This is the number of boats passing on the junction canal, to and from tide-water, in 1824.

‡ This is the tonnage arriving at Albany alone.

in all, between the two periods, nearly 50 per cent. This shows an annual average increase in the tolls of nine and seven-tenths per cent for each of the preceding seventeen years.

The amount of tonnage coming to tide-water, comparing 1849 with 1834, has increased 185 per cent in fifteen years, averaging a fraction more than 12 per cent for each year.

In 1834, 553,596 tons came to tide-water in 16,219 cargoes. In 1849 there came to tide-water in 23,260 cargoes, 1,579,946 tons; thus showing that while the tonnage has increased 185 per cent, the boats that conveyed the products to market have increased only 43½ per cent. This difference is occasioned by the increase in the tonnage of the boats used on the canals.

The increase of the tonnage going from tide-water is 175 per cent, comparing 1849 with 1834—being a fraction more than an average of 11½ per cent for each year.

The tonnage given in the two last columns of the preceding table is the quantity arriving at, and clearing from tide-water. The quantity of products coming to market, or to the tide-waters of the Hudson, from 1846 to 1850, both inclusive, averages more than a million and a half of tons for each of the five years. The quantity of merchandise and other articles going from tide-water averages 286,000 tons per year for the same time. The quantity coming to tide-water for the period referred to is as five and two-tenth tons, to one going from tide-water.

The value of the products coming to tide-water for the last five years, averages about fifty-six millions of dollars for each year. This includes the year 1847, when the increased quantity and high prices of breadstuffs carried the total amount coming to market as high as seventy-three millions of dollars—being twenty-one millions more than in 1849.

The merchandise going from tide-water, from 1846 to 1850, averages about 220,000 tons for each of the five years—the average value for each year being about sixty-four millions of dollars. The value of products coming to market, and merchandise going from tide-water on the canals, does not vary materially from one hundred and twenty millions of dollars, on an average, made up from the business of the last five years.

In 1833, the products arriving at Albany were valued at	$8,419,859 70
In 1833, the products arriving at west Troy were valued at	4,317,823 82
Total value coming to tide-water	$12,737,783 52

In 1849 the value of products transported in boats which came down the canals, and were towed from Troy and Albany to New York, without breaking bulk, was more than the whole amount coming to tide-water in 1833, being $14,348,942.

The following table shows, in the first column, the value of all the products coming to tide-water on the canals, from 1834 to 1850. Second, the value of all products coming from the Western States and Upper Canada, by way of Buffalo and Oswego. Third, the value of the merchandise going to the other states by way of Buffalo and Oswego; and the fourth column is made up of the second and third, being the total of the amount of products coming from, and merchandise going to the Western States.

	Val. of prod's coming to tide-water.	Prod's from Western States.	Mer'dise to Western States.	Total of two preceding.
1834	$13,405,022	.....	.....	.....
1835	20,525,446	.....	.....	.....
1836	26,932,470	$5,493,816	$9,723,250	$15,217,066
1837	21,822,354	4,813,626	6,322,750	11,136,376
1838	23,038,510	6,369,645	8,657,250	15,026,895
1839	20,163,199	7,258,968	10,259,100	17,518,068
1840	23,213,573	7,877,358	7,057,600	14,934,958
1841	27,225,322	11,889,273	11,174,400	23,063,673
1842	22,751,013	9,215,808	7,218,900	16,434,708
1843	28,453,408	11,937,943	13,067,250	25,005,193
1844	34,183,167	15,875,558	14,845,250	27,720,808
1845	45,452,321	14,162,239	17,366,300	31,528,539
1846	51,105,256	20,471,939	20,415,500	40,887,439
1847	73,092,414	32,666,324	27,298,800	59,965,124
1848	50,883,907	23,245,353	30,553,920	53,799,273
1849	52,375,521	26,713,796	31,793,400	58,507,196

The preceding table goes no farther back than 1826, in giving the trade with the Western States, for the reason before given. For the preceding seven years, the merchandise and furniture going to the Western States was as given below:—

Years.	By way of Buffalo.	Do. Oswego. Tons.	Value..	Furniture. Tons.
1829.....	4,881	.....	$1,415,490	935
1830.....	6,061	.....	1,939,490	1,832
1831.....	9,435	.....	2,736,150	2,849
1832.....	8,780	.....	2,546,200	2,918
1833.....	14,341	612	4,336,370	4,257
1834.....	17,401	871	5,298,880	4,149
1835.....	18,466	4,041	6,527,030	4,674

All the furniture in the above table was shipped at of Buffalo. The Oswego canal was navigable in 1828, but no returns were made until those given in table F, appended to Senate Doc., No. 58, of 1835, which were furnished by individuals of that place. In 1834 Oswego sent 61,604 barrels of salt to Lake Erie; and in 1835 82,000—receiving 219,868 bushels of wheat from that lake in 1834, and 275,000 in 1835.

The quantity of products which came by way of Buffalo from the Western States, for four of the years covered by the last preceding table, was as follows:—

1830.....tons	12,876	1832.....tons	10,957
1831.....tons	17,384	1835.....tons	22,124

In 1829 there was cleared at Buffalo, on the canal, 4,335 barrels of flour, and 3,640 bushels of wheat. In 1833 there were 78,666 barrels of flour sent east from Buffalo, and 114,337 bushels of wheat. In 1834 there were 79,324 barrels of flour, and 111,798 bushels of wheat. In 1829 there were 70 tons of butter, and 68 of cheese. In 1833 449 tons of butter and 95 of cheese. In 1834 119 tons of butter, and 138 of cheese sent east, all of which probably came from the west. Table G of Senate Doc., No. 58, of 1835, gives all the products cleared from Buffalo east, from 1829 to 1834, both included.

The aggregate tonnage of all the state canals has been ascertained and kept since 1836. This embraces any article which moves for any distance on the canals, including the materials used in making repairs, or in enlarging the Erie canal, so far as these materials are transported on the canals. This is termed in the tables of the report the "total movement of articles on all the canals." In 1847 the aggregate number of tons of the "total movement" on 700 miles of canals, was 2,869,810 tons, and the tonnage of 1849 exceeding this by 25,000 tons. The tonnage from 1836 to 1842 averaged 1,300,927 tons for each of the seven years. From 1843 to 1849 the average was 2,305,289 tons for each of the seven years.

The aggregate value of these products in 1847 was $151,563,428. In 1848 it was 10,000,000 less, and in 1849 nearly $7,000,000 less than in 1847. The average value from 1836 to 1842 was $68,746,769 for each of the seven years. From 1843 to 1849 the average value was $117,117,414 for each year.

The following table shows the relative per centage on the products of the forest, of agriculture, of manufactures, of merchandise, and of other articles. The first column shows the proportion which these classes of commodities bear to each other in the tons which make up the "total movement." The second column the relative value, according to this classification; and the third column the proportion of tolls derived by the state from each class of articles.

Class of articles.	Per cent of ton'ge	Per cent of value.	Per cent of tolls.
Products of the forest.....	43.32	7.71	13.19
Products of agriculture...	29.35	29.44	44.53
Products of manufactures.	7.33	6.76	3.95
Products of merchandise..	8.44	51.96	24.24
Other articles.....	11.56	4.13	5.34
Boats and passengers.....	.....	.....	8.75
Total.....	100.00	100.00	100.00

Merchandise, which makes up less than 8½ per cent of the tonnage, pays to the state nearly one-fourth of the tolls, and is valued at more than half of the commodities transported. Agriculture, on a tonnage of a fraction over 29 per cent, pays 44½ per cent of the revenue to the state, the per centage of its value and tonnage being nearly equal. The products of the forest exceed 43 per cent of the tonnage, and pay only a little more than 13 per cent of the tolls, whilst the value of this vast amount of tonnage (exceeding one million of tons) is a little more than 7½ per cent of the value of all the products transported.

The Canal Commissioners state in their report of 1850, that there would be in use this year 778 miles of canals and feeders; and that when the Black River and Genesee Valley canals are finished, the extent of the canal and slack water navigation belonging to the state will be 898 miles. The whole expense of the maintenance of the canals, including repairs, collection of tolls, &c., has averaged $712,575 for each of the last five years, which is a fraction less than 24 per cent of the whole sum received for tolls. The cost of repairs for ten years preceding 1846 averaged $585,161 for each year, as shown in Convention Doc., No. 73, p. 6, 7. The revenue from tolls has also greatly increased in the last five years.

Another article, in relation to railroads in this State, will bring to a close the promised sketch of "internal improvents in the state of New York."

Railroad Traffic.

The Harlem railroad receipts show a large gain over last year. They are for March:

1851	$42,615 16
1850	32,596 23
Increase, 31 per cent	$10,018 93

The aggregate increase for January, February and March is $27,693 94.

The receipts of the Albany and Schenectady road are considerably in advance of the estimates of the company. The March earnings are:

1851	$16,876 17
1850	12,311 04
Increase equal to 37 per cent	$4,565 13

The March receipts of the Norwich and Worcester road show also a gain over the same month of last year. They are:

1851	$21,631 92
1850	21,431 00
Increase in 1851	$1,531 92

Macon and Western Railroad.—The earnings of the Macon and Western railroad for March were:

1851	$18,590 06
1850	16,952 01
Increase 10 per cent	$1,638 65

The cash receipts for sales of land belonging to the Wabash and Erie canal, for the three months ending 31st March, amounted to.....$61,906 30
The receipts for the same period last year were..... 21,893 32

Increase	$40,012 98

Housatonic Railroad.—The annual report of the Housatonic railroad has beeen published, and from it we gather the following facts. The receipts of the year were:

Paesengers	$126,988 98
Freight	170,081 19
Mails, &c	12,993 06
Total	$310,063 23
Expenses and repairs	153,235 34
	$156,827 89
Rents to Berkshire, Stockbridge and Pittsfield and West Stockbridge roads	74,811 60
Net earnings of Housatonic road	$82,016 29
Deduct extraordinary expenses and new equipment	30,523 00
Net balance	$51,493 29

This road commenced working the Stockbridge and Pittsfield road in December, 1849, and the repairs and expenses of that road have consequently gone into the above expenditures. The comparative receipts of 1848, '49 and '50 are as follows:

1848	$274,314
1849	287,184
1850	310,063

The increase in 1850 is $22,879. This small increase is ascribed to the depressed condition of the iron business on the line of the road. Several manufacturing establishments will be put into operation this year, which will add to the revenues of the road. The gross earnings of January, 1851, were $48,454; February, estimated, $36,000; together, $84,454, against $78,176 in the same months of 1850. The net earnings after paying all expenses, ordinary and extraordinary rents and dividend on preferred stock, show a deficiency of $19,354 27, which was more than absorbed by the extraordinary expenses.

Welland Canal.

The Canadian Department of Public Works have just published a schedule of the rates of toll adopted for the Welland canal for the ensuing season by the board. We take the schedule from the Toronto Globe, and add the rates chargeable last year, by which it will be seen that reductions have been made in some leading articles, varying from 25 to 33 per cent., but on lumber the rates have been put to a much higher figure than last year.—The principal reductions have been in flour, pork, butter, lard, bran, ship stuff, iron, etc.

1.	1850. s.	d.	1851. s.	d.
Steamboats and other vessels per ton measurement	0	1½	0	1½
2.				
Passengers	0	7½	0	0
" over 21 years of age	0	0	0	6
" under "	0	0	0	3
3.				
Brick, lime, cement, gypsum, sand, stones wrought or unwrought, salt, coal, manures, clay, manganese, ores, barks, per ton, 2000 lbs	1	3	1	0
4.				
Grain, all kinds except wheat and seeds, per ton, 2,000 lbs	1	10½	1	6
5.				
Fish, stoneware and earthenware, furniture and baggage of settlers, pot and pearl ashes, bran and ship-stuffs, raw cotton and wool, hemp, hay, rags, coperas, wrought, cast and other iron, charcoal, pig and bar lead, lead manufactured, carts, wagons and sleighs, farming implements, mechanics' tools, machinery per ton, 2,000 lbs	2	6	2	3
6.				
Wheat and flour, per ton, 2,000 lbs	3	1½	2	3
7.				
Biscuit, butter, pork, lard, per ton 2,000 lbs	3	9	2	3
8.				
All other goods, per ton, 2,000 lbs	5	0	5	0
9.				
Timber:—				
Square in vessels, boats or craft, per M. C. feet	20	0	25	0
Square in rafts, vessels passing thro' the canals, per M. C. feet	30	0	40	0
Square, round or flatted, in vessels, boats or craft, under 12 in. by 12 in. per M. L. feet	15	0	20	0
Square in rafts, do. do., passing thro' the canals	20	0	35	0
Boards, plank, scantling or lumber sawed, in vessels, boats or craft, per M feet, inch measurement	1	3	1	6
Do. do. in rafts through the canals	1	3	1	6
Pipe staves and headings, per M	10	0	10	0
West India " "	3	9	3	9
Barrel " "	1	3	2	0
Shingle, "	0	3½	0	4
Fire wood, per cord	1	3	0	7½

Rafts descending the river—free.

New York.

Syracuse and Utica and Syracuse and Rochester Railroads.—The following are the rates of way fare established upon the above roads for the present season:

	Cents.
Syracuse to Manlius	15
" Kirkville	20
" Chittenango	30
" Canasaraga	35
" Canastota	40
" Wampsville	45
" Oneida	55
" Verona	60
" Green's Corners	70
" Rome	80
" Oriskany	95
" Whitesboro'	1 00
" Utica	1 06

The way fare on the Rochester and Syracuse railroad has been fixed as follows:

	Cents.
Syracuse to Camillus	20
" Marcellus	25
" Halt Way	35
" Junction	45
" Sennett	55
" Auburn	65
" Cayuga	95
" Seneca Falls	1 05
" Waterloo	1 15
" Geneva	1 30
" Oak's Corners	1 40
" Vienna	1 50
" Clifton	1 60
" Shortsville	1 70
" Canandaigua	1 85
" Farmington	2 05
" Victor	2 10
" Fisher's	2 20
" Pittsford	2 40
" Rochester	2 60

Ohio.

Belpre and Cincinnati Railroad.—Such is the name by which the work is designated, which the Belpre and Cincinnati railroad company propose to construct, under their charter, which authorises the building of a railway from Cincinnati, across the peninsula of Ohio, through Chillicothe and Athens, to any points on the Ohio river, in the county of Washington, at which it will be most convenient to unite with the railway termini east of that river.

The length of the route, from east to west, is about 200 miles;—it pursues a course as nearly straight as that of any other great line in the country, and will shorten the travelling distance from Cincinnati to Baltimore and the east, as contrasted with the Ohio river route, 130 miles.

That road will pass through the counties of Hamilton, Clermont, Highland, Ross, Vinton, Jackson, Athens and Washington, in the State of Ohio, crossing through the midst of the richest agricultural districts of our State, and the best mineral region for iron and coal in the great north-west. Designed, as it is, to connect, on the west, at Cincinnati, with the Ohio and Mississippi railroad, to St. Louis, and with the systems of railways projected north westwardly and southwardly, from that city—and on the east with the Baltimore and Ohio railroad, a glance at the map will show that the line is one of the most *necessary* and important—considered intrinsically or as a connecting link—in the United States. At or near Greenfield, in Highland County, 23½ miles west of Chillicothe, the work of the Dayton, Xenia and Belpre company, chartered at the late session, is designed to connect. This latter, when constructed, will open a direct channel from the mineral region which skirts the Scioto Valley on the east, with the towns and country of Western Ohio and Central Indiana.

The route of the Belpre road has been surveyed throughout. Much of it has been subjected to instrumental examination; and the whole has proved highly favorable for the construction of a substantial railroad on the most economical basis.—Eighty entire miles of the whole two hundred are through the most abounding surface mines of iron and coal, and (incidentally,) of limestone, salt and burrstone. The active operations of the company have just commenced, and, at the late meeting of the board, 34½ miles of the line were ordered under contract. Subsequently the construction of that portion—extending nearly through the county of Ross—was let to the house of Cushing, Wood & Co., Boston, on terms deemed highly favorable to all parties. It is expected that the most ot the contract will be ready for the iron early next year.—The board, also, at a late meeting, directed the President, as soon as practicable, to put under contract another section of the road, eastwardly, to the centre of the coal region.

The present available capital of the Belpre company, is in amount $475,000, including the subscriptions of Ross and Athens counties. In addition to this, Cincinnati has subscribed $150,000 on certain conditions, which will doubtless be filled satisfactorily to that city, and the counties of Washington, Vinton and Ross are authorised to subscribe, in the aggregate, $575,000 more. The terms of the late letting are equal to a subscription of $100,000 to the capital of the company; and, in all respects, its prospects are most cheering.

The following is the estimated cost for grubbing, grading, etc., of the line from Hillsborough to Chillicothe, Patton Summit and High Line, from Hillsboro to Greenfield 17·165 miles,

at $10,479 99	$179,889 12
From Greenfield to Frankfort, 11·61 miles, at $10,544 81	120,103 30
From Frankfort to Chillicothe, as adopted, 11·06 miles at $11,900	131,614 00
	$431,606 42

The officers of the company are W. P. Cutler, of Washington county, President; Hugh Smart and A. Ballard, of Highland county; A. Hegler, J. Sperry, C. Robins, T. Rittenhouse, J. Madeira, F. Campbell, W. Claypool, of Ross; and J. Ballard and A. Walker, of Athens. A. Kennedy, Chief Engineer.—*Scioto Gaz.*

Vermont.

Important Railway Movement.—Boston capital was enlisted in the construction o the Northern railroad of New York, known as the *Ogdensburgh railroad*, with the idea of securing to that city a more favorable line for the trade of the west, than that of the *Western* railroad. It is known to all our readers that the effect of this expenditure has been, up to this time, to benefit New York city to a far greater extent than Boston.

We have at all times advocated the policy of allowing the railroad companies the right of bridging Lake Champlain at Rouse's Point. This matter is now pending before the New York Legislature, and we are of opinion that by proper exertions, on the part of the friends of this measure, its success can now be made certain.

The great number of important projects dependent on the bestowal of this grant, may lead the Legislature of New York to adopt. without extraneous effort from any quarter, the enlarged and liberal policy, so clearly pointed out by every consid-

eration of individual or public interest. Supposing the bridge across Lake Champlain accomplished, the question arises, which channel, for the trade of the St. Lawrence, is likely to be preferred?

By looking at the map, it is seen that Portland and Portsmonth are each some fifty to eighty miles nearer to Rouse's Point than Boston, or New York. By extending a line of railway in the valley of the Missisquoi river, an easy connection may be formed with the Portland and Montreal railway in the Connecticut valley.

At the recent session of the Legislature of Vermont, a charter was granted for this purpose, and active measures have since been in progress to carry out this purpose. We have received a copy of the proceedings of a meeting recently held at Troy, Vt., in aid of this project, a copy of which we give below.

RAILROAD MEETING AT TROY, VT.

At a mass meeting of the people of the Missisquoi valley, together with numerous enterprising gentlemen from the eastern part of Orleans county, from Franklin county, and the southern portion of Canada East, convened at Curtis Elkins' hotel, in North Troy, on the 14th ult.

Samuel Sumner, Esq., of North Troy was appointed president, Norman Boardman, Esq., secretary, and Hon. Jairus Stebbens, of Westfield, W. Clapp, Esq., of Berkshire, and Abel Hurlbut, of St. Armand, vice presidents.

On motion of John S. Royce, Esq., a committee of five was appointed by the chair, on resolutions, consisting of Messrs. J. S. Royce, Flint, Chandler, Wilson and Winslow.

Adjourned to one o'clock, P. M., at the Baptist Meeting House.

Met in the afternoon, pursuant to adjournment, when the committee on resolutions reported the following resolutions to the convention, and the same were accepted.

Resolved, That recognising the importance of a railway communication, to the great agricultural and commercial interests of this country, in providing the most expeditious, effective and profitable conveyance for our products to the Atlantic markets, we feel it our duty to make a vigilant use of all honorable means in securing the construction of a railway through the valley of the Missisquoi river, to connect with other roads now in operation and leading to the principal markets of the east and south.

Resolved, That a survey of this route shall be made at the earliest practicable day, with a view to the feasibility, character, expense, and general character of the line with reference to its connection with the various railroads approaching us from Portland, Portsmouth, Boston, Lake Champlain, and Montreal, as we believe that an accurate examination of the country will satisfy the public that it is the most direct and the cheapest route that can be found between those Atlantic cities, Lake Champlain and the St. Lawrence.

Resolved, That Hon. H. E. Royce, and A. J. Rowell, Esq., be requested to act as a delegation from the inhabitants of northern Vermont, to visit Portland and Boston for the purpose of laying before the capitalists of those cities, such information as they may acquire in relation to the practicability of building the Missisquoi valley railroad, and the benefits it would confer upon them and their railroads, by this direct and easy access to the commerce of the waters of the Missisquoi river, Lake Champlain and the St. Lawrence.

Resolved, That I. B. Bowdish, Swanton, Wm. Clapp, Berkshire, S. P. Carpenter, Richford, Curtis Elkins, North Troy, E. Cleveland, Coventry, be an executive committee, to superintend the collection of funds necessary to defray the expenses attending the business of the delegation and the contemplated survey, and also to direct all matters connected with the survey of this line by a competent and suitable engineer.

The resolutions were ably discussed by Mr. Baxter, of Derby Line, Mr. French, of Stanstead, Rev. Mr. Piper, of Troy, and Mr. Royce, of Berkshire, and on motion of Amasa Paine, Esq., of Lowell, unanimously adopted.

On motion of Mr. Royce of Richford, it was

Resolved, That the executive committee, either by themselves, or a committee to be by them appointed, be requested to collect statistics in relation to the wealth, mineral and agricultural resources of the country tributary to the Missisquoi valley railroad, with a view to aid our delegation to Boston and Portland in enlisting the capitalists of those cities in our great and important enterprise.

The meeting was well attended, the house filled to overflowing, and an enthusiastic, energetic and determined spirit seemed to pervade all the minds present that the work shall "go forward" and be accomplished.

Voted, That the proceedings of this convention be forwarded to the Orleans County Gazette for publication, with a request that the Stanstead Journal and the presses of Caledonia, Washington and Franklin counties publish the same.

Adjourned.

SAMUEL SUMNER, President.

NORMAN BOARDMAN, Secretary.

It will be seen that the persons taking part in these proceedings are among the most influential citizens of the State.

The productive resources of Northern Vermont and of the Canadian Frontier counties, are equal to those of any portion of New England, and if proper exertions are put forth, the completion of the line, from Rouse's Point to a point of connection with the Portland and Boston roads, may be secured at an early day.

New York Canals.

We have received the various documents issued annually by the canal board and the State Engineer, in relation to these works.

The whole extent of canals authorised by the law and belonging to the State is:—

	Miles.
Erie canal, not including Albany basin	363
Champlain canal	66
Glenns Falls feeder	12
Pond above Troy	3
Black river canal	90
Chenango "	97
Oswego "	38
Oneida Lake "	6
Oneida river improvement	20
Seneca river towing path	5
Cayuga and Seneca canal	23
Cayuga Inlet	2
Crooked Lake canal	8
Chemung canal	39
Oneida Creek feeder	2
Genesee Valley canal	118
Feeders, &c. of the Erie canal	9
	901

The unfinished canals are the—

Black river	52
Genessee Valley	68
	120

The whole extent of line in operation the past year has been	778 miles.
Of the enlargement there have been Completed	140 9-10 "
To be completed	223 11-100 "
The whole amount of expenditure on account of the canals the past year for repairs, superintendence, etc., has been	$615,219 28

Some of the most important items which make up this aggregate are:—

Expended on locks	$46,036 73
Lock tending	93,231 77
Lock gates	35,172 18
Road bridges	37,557 09
Repairing tow path and slope wall	79,591 90
Clearing out canal	70,458 14

Below we give some interesting statistics of the movement of property on the canals for the past 15 years.

The total tonnage of all the property on the canals, ascending and descending, its value, and the amount of tolls collected for the fifteen years preceding, is as follows, viz:—

Year.	Tons.	Value.	Tolls.
1836	1,310,807	$67,634,343	$1,614,342
1837	1,171,296	55,809,288	1,292,623
1838	1,333,011	65,746,559	1,590,911
1839	1,435,713	73,399,764	1,616,382
1840	1,416,046	66,303,892	1,775,747
1841	1,521,661	92,202,929	2,034,882
1842	1,236,931	60,016,608	1,749,196
1843	1,513,439	76,276,909	2,081,590
1844	1,816,586	90,921,152	2,446,374
1845	1,985,011	100,553,245	2,646,181
1846	2,268,662	115,612,109	2,756,106
1847	2,869,810	151,563,428	3,635,381
1848	2,796,230	140,086,157	3,252,212
1849	2,894,732	144,732,285	3,268,226
1850	3,076,617	156,397,929	3,273,899

The total tons coming to tide water, for each of the last seventeen years, and the aggregate value thereof in market, was as follows, viz:—

Year.	Tons.	Value.
1834	553,596	$13,405,022
1835	753,191	20,525,446
1836	696,347	26,932,470
1837	611,781	21,822,354
1838	640,481	23,038,510
1839	602,128	20,163,199
1840	669,012	23,213,573
1841	774,334	27,225,322
1842	666,626	22,751,013
1843	836,861	28,453,408
1844	1,019,094	34,183,167
1845	1,204,943	45,452,321
1846	1,362,319	51,105,256
1847	1,744,283	73,092,414
1848	1,447,905	50,883,907
1849	1,579,946	52,375,521
1850	2,033,863	55,474,637

The whole quantity of wheat and flour which came to the Hudson river, from 1834 to 1850, inclusive, with the aggregate market value of the same, and the amount of tolls received on all the wheat and flour transported on the canals in each year, from 1837 to 1850, inclusive, is as follows:—

Year.	Tons.	Value.	Tolls.
1834	130,452	$5,719,795	Not ascertained.
1835	128,552	7,395,939	do.
1836	124,982	9,796,540	do.
1837	116,491	9,640,156	$301,739
1838	133,080	9,883,586	380,161
1839	124,683	7,217,841	404,525
1840	244,862	10,362,622	700,071
1841	201,360	10,165,355	621,046
1842	198,231	9,284,778	606,727
1843	248,780	10,283,454	731,816
1844	277,865	11,211,677	816,711
1845	320,463	15,962,950	851,533
1846	419,366	18,836,412	1,099,325
1847	551,205	32,890,938	1,460,424
1848	431,641	21,148,421	1,126,133
1849	434,444	19,308,595	1,128,064
1850	461,781	20,218,188	1,114,519

The tons of wheat and flour shipped at Buffalo and Oswego, from the year 1835 to 1850, and to Black Rock, from 1839 to 1850, inclusive, and the total tons of wheat and flour which arrived at the Hudson river, were as follows, viz:—

Year.	Buffalo Tons.	Black Rock Tons.	Oswego Tons.	Total.	Total tons arrived at tide water.
'35	15,935	.....	14,888	30,823	128,552
'36	24,154	.....	13,591	37,745	124,982
'37	27,206	.....	7,429	34,635	116,491
'38	57,977	.....	10,010	67,987	133,080
'39	60,082	7,697	15,108	82,887	124,683
'40	95,573	12,825	15,075	123,473	244,862
'41	106,271	24,843	16,677	147,791	201,360
'42	107,522	13,035	14,338	134,895	198,231
'43	146,126	12,882	25,858	184,866	248,780
'44	145,510	15,669	42,293	203,472	277,863
'45	118,614	17,066	44,560	180,240	320,463
'46	247,860	16,564	63,905	328,329	419,366

'47..	380,053	18,489	87,329	482,871	551,205
'48..	253,325	19,376	90,411	363,112	431,641
'49..	229,983	22,196	119,201	371,380	434,444
'50..	205,457	24,256	133,473	363,186	461,781

To be continued.

European and North American Railway.

Below is the act of the Legislature of New Brunswick granting aid to the above road:

When the shareholders of the European and North American railway company shall pay into their treasury at least the sum of ten thousand pounds, sterling, and it shall be satisfactorily proved to the Lieutenant Governor in Council that such sum has been actually paid in, and is ready to be expended within this province of the European and North American railway the Provincial Treasurer shall be authorised by the Lieutenant Governor in Council, to subscribe on behalf of the Province for shares in the said company to the like amount, and in payment therefor to deliver to the said company special certificates of debt, to be called debentures, bearing interest at a rate not exceeding six per cent per annum, the principal money redeemable in thirty years; and so from time to time, when it shall be satisfactorily proved to the Lieutenant Governor in Council, that the sum theretofore subscribed and paid in by the shareholders of the said company, and the proceeds of the debentures previously delivered, have been expended in the construction of the said railway, and that a further sum of at least ten thousand pounds, sterling, has been actually paid in by the shareholders, and is ready to be expended in like manner, the Province Treasurer shall again be authorised to subscribe on behalf of the Province for shares in the company to an equal amount with the sum so paid in and ready to be expended, and also to pay in full for such shares by a further delivery of debentures; provided always, that the amount of shares in the said company subscribed and paid for by the Province Treasurer in any one year shall not exceed one hundred thousand pounds, sterling, and in the whole shall not exceed two hundred and fifty thousand pounds, sterling.

Virginia.

Petersburg Railroad.—The annual meeting of the stockholders of this company was held on the 3d ult. The report states the amount of

Capital paid in amounts to		$769,000 00
Debts due by the company		150,851 05
Profit and loss		19,316 56
		$939,167 61
Cost of railroad	$769,000 00	
New track—now being laid	154,821 22	
Debts due the company	9,716 43	
Cash	5,629 96	
		$939,167 61

The receipts for transportation for the year ending January 31st, were $211,129 17, composed of the following items: freight, $98,941 06; passenpers, $96,188 11; mails, $16,000. The receipts for the preceding year were $180,453 99. This shows an increase of $30,675 18 in favor of the past year. There were expended during the same period, for officers' salaries, repairs of road, etc., etc. $85,961 65

For one new engine, two new passenger and twelve freight cars, and eighteen trucks	21,135 00
Miscellaneous	628 12
Interest account, and on account of individual contract	7,224 78
Making a total of	$114,949 55

Or $6,307 75 less than the expenditure of the previous year. Deducting this amount ($114,949 55) from the amount of receipts, $211,129 17, and the net income is $96,179 62. Of this sum, $57,675 were paid out for a 7½ per cent. dividend, leaving a balance or surplus of $38,504 62. The sum of $118,232 35 was expended during the past year on the new track which the company are now laying, of which amount $49,802 04 was paid in cash.—This the company were enabled to do from the surplus of $38,504 62 of receipts and cash on hand, $18,084 34, and other assets from last year. As stated, the whole debt of the company is $150,851 05. The sum of $39,346 39, however, is to be deducted for cash on hand, debts due, and the value of old iron as far as taken up. The company's indebtedness, before they commenced laying the new track, was $14,409 81. This would leave $97,094 85, incurred for that purpose, to the first of March. For the new track, there has been expended, so far, the sum of $154,821 22. If from this is deducted the value of old iron ($24,000), $130,821 22 is left as the amount of cost of new track up to January 1st. The company expect that the whole improvement will not cost over $165,000.

The following is a comparative statement of the business of the company for the years ending Jan. 31, 1850, and Jan. 31, 1851.

	Jan. 31, '50.	'51	Inc & dec.
Rec'ts of trans.	$180,453 99	$211,129 17	$30,675 18
Expenses	121,257 30	114,949 55	*6,307 75
Net income	50,196 69	96,179 62	36,982 93
Dividend	7 per ct.	7½ per ct.	

* Decrease.

Albany and Susquehanna Railroad.

A meeting was held at Oneonta, in the county of Otsego, on the 2d instant, at which a company was organized to construct a railroad from this city to some point on the New York and Erie road, at or near Binghamton, in the county of Broome, thro' the valley of the Susquehanna, by way of the Great Bend. We learn that delegations were present from more than twenty towns in the counties of Albany, Schoharie, Delaware, Otsego, Broome and Chenango. Notwithstanding the rain, it is estimated that nearly two thousand persons were present. The meeting was organized by the appointment of Edward C. Delavan as President, Jesse C. Potts, and others, as Vice Presidents, and Woodbury Cook and J. Terry as Secretaries. Brief addresses were made by Col. Snow, of Otsego, R. H. Pruyn, of this city, Joel B. Nott, of Guilderland, J. McFarland, of Washington county, and Gideon Hotchkiss, of the county of Broome. Articles of association were agreed upon, and subscriptions made to the capital stock of the company. Great confidence is expressed in the ability of the people along the proposed line of the road, with such assistance as they are entitled to expect from the cities of Albany, Boston and New York, to build the road in the most durable manner, and in a short space of time. At the time the Albany delegation left, the delegates were engaged in apportioning amongst the towns the amount of stock it was considered desirable to have subscribed in advance of full surveys and estimates of the cost of construction. As an evidence of the confidence of those present in the value of the stock as an investment, we would state that several subscriptions of $10,000 and $5,000, respectively, were made.

The following directors were chosen:—

Edward C. Delavan, William V. Many, Robert H. Pruyn, Charles Van Benthuysen, Franklin Townsend and Erastus Corning, of Albany; Joel B. Nott, of Guilderland; George W. Chase, of Maryland; Charles Courter, of Cobleskill; Samuel R. Beach of Oneonta; Arnold B. Watson, of Unadilla; Richard W. Juliand, of Bainbridge; and Gideon Hotchkiss, of Windsor.

We learn that the grades through the valleys of the Susquehanna and Schenevus are, if any thing, more favorable than in the valley of Mohawk, and and that the highest grade coming east will be about thirty-four feet to the mile in ascending from the Schoharie Creek to the head waters of the Normanskill.—*Albany Journal.*

Kentucky.

The people of this State having, up to a recent date, remained in comparative indifference in relation to railroads, are now actively engaged upon several important lines. Railroads are now attracting great attention in Kentucky, and as that is one of the oldest and richest of the western States, and as the means of her people have not been exhausted upon any projects of a similar kind, we may expect to witness a very rapid progress of railroads in that State for some years to come.

The only railroad in operation in Kentucky, is the line from Louisville to Lexington. The latter city, the largest interior town in the State, is soon to become the focus of a large number of roads—the Maysville and Lexington on the east, the Covington and Lexington on the north, the Louisville line on the west, and the Lexington and Danville on the south. Of these, the two former are in progress. The Danville road will soon, we presume, be commenced, as the county of Fayette has recently voted $200,000 to aid it.

The Maysville and Lexington road, having secured sufficient means for the construction of its whole line, is now to be pushed forward with vigor. The length of this road will be about 70 miles. The estimated cost, $1,500,000. The first half from Maysville embraces a great deal of heavy work, involving two or three expensive tunnels. The remainder of the route is very favorable. It is expected that this division of the road, extending from Lexington to some point near the Licking river, will be completed by the first day of January, 1853, and the whole road in a year and a half from that time. This line will connect the other roads of Kentucky with the great avenues of travel west: and by cutting off, in connection with the Louisville road, the great bend of the Ohio, it will attract to itself a large amount of the travel going east and west.

The parties having the management of the affairs of this company, and particularly its Engineer, L. L. Robinson, Esq., deserve great credit for the zeal and earnestness with which they have labored, under all discouragements, to secure the necessary means for the road. These are now provided beyond a contingency, and nothing is now wanting but time, to complete the work.

The most important project in the State, is the great line from Louisville to Nashville. This will soon be the only link wanting in a contiuuous line of railroad, to unite the northern and southern extremes of the Union; the Great Lakes on the one hand, and the Gulf of Mexico on the other, the means for this great line will be readily secured. Its construction will be urged forward by a consideration of the important results that will flow from its completion. The work of construction may, with the same convenience, be commenced on each end, as Louisville and Nashville are equally accessible by water from New Orleans. The route is of the most favorable description, and the work can be pushed forward with great rapidity. It is also proposed to construct a branch from this road, to strike the Mississippi near the mouth of the Ohio, for the purpose of forming a junction with the Mobile and Ohio road.

It is also proposed to extend the Lexington and Danville railroad to Nashville, by a more easterly line than the Louisville and Nashville road: but this project is not yet sufficiently matured to come before the public in an organised form. The Louisville people also propose to extend a branch from the Louisville and Frankfort railroad, in the direction of Danville, for the purpose of preventing the trade of that section of the country taking a northerly direction to Cincinnati.

The above embrace the leading projects now engaging the attention of the people of Kentucky.—There are others not so far advanced, but which will soon be added to the list of roads in progress. Having now fairly embarked in the construction of railroads, we have good reason to believe that this State will go on with the work, till every practicable portion of it shall have its appropriate line.

AMERICAN RAILROAD JOURNAL.

Saturday, April 12, 1851.

Notice to Contractors.

St. Andrews and Quebec Railroad.

TENDERS will be received up to 15th of May next, at the Railroad Rooms, Saint Andrews, for Grading 32 miles of the St. Andrews and Quebec Railroad, commencing at the terminus of the ten miles already graded, near Bartlett's Pond, and continuing on the Line to Station No 2314, near the head waters of the Digdeguash river.

Plans, Specifications and Sections of the Line, may be viewed at the Engineer's Office, at any time after the 10th of April next, and information given by A. L. Light, Engineer.

JOHN WILSON, President.

The Stock and Money Market.

We still note a gradual improvement in the stock market, and in the price of securities, with limited transactions in the bonds of new works. Those of the best western lines are selling at about 85 cents on the dollar, net, though the bonds of weaker companies are probably selling somewhat under that price. We advise our friends at a distance, though the market is improving, not to offer their securities at present. It is much better to allow the market a sufficient time to fully recover. It might fall again under a very large supply. The prospect for the coming season looks encouraging, and there appears every reason to believe that railroads will be able to obtain money at as good rates as the past year.

By the last advices, the price of rales in England remains about at previous quotations; £5 10 shillings free on board being the asking price. As orders from this country are now slacking off, we see no reason to expect any immediate advance in prices. A great majority of our roads in progress find it of their interest to order their iron in winter, to take advantage of the spring freshets in carrying it into the interior. The very large amount of orders that went abroad during the winter had less effect upon the price in England, than was generally anticipated. We believe that the expectations of dealers on this side have not been realized. We have no doubt that the interests of the leading English manufacturers are opposed to any advance that would yield more than a moderate profit. Such is the capacity of many of their works, that a few shillings profit on the ton would yield a very large surplus; and as the ability to make far exceeds the demand, a price that would give a large profit would lead to the most disastrous results in stimulating the business far beyond the wants of the trade. At present prices, the English manufacturers are undoubtedly doing a saving business, and they prefer to monopolize the make at the present price, than invite competition by a large profit.

A good deal of interest is being manifested in relation to the various compound rails before the public, the objects of which are to obviate the defects of the form now in use, which is the cause of an enormous wear and tear to the machinery and track. American iron, from its superior quality, will readily command a much higher price than the foreign article, and if our railroad men become convinced, as we are satisfied they will, that the compound rail, at a much higher first cost, is more economical in the end, this will lead to the manufacture, on a large scale, of railway bar in this country.

The following are the advices by the steamer that arrived on the 10th inst:—

English Iron Market.—Welsh bars are firm at £4 17s. 6d., free on board; and the market is now nearly cleared of second hand parcels. In rails there has been some business doing at £5 7s. 6d., and £5 10s., and the latter is now the lowest price. Scotch pig 40s. 6d. for mixed numbers on the Clyde. Swedish £11 15s. a £12. Russian C.C. N.D. held at £17.

Freights.—To New York metals are 10s. 6d. to 15s. per ton; bulky weight 12s. 6d. to 17s. 6d.; hardware, 15s.; carthenware, 10s. To Boston dead weight is 17s. 6d. to 25s.; fine goods 20s.; hardware 20s.; earthenware 10s. To Philadelphia dead weight is 17s. 6d. to 20s.; fine goods 20s; hardware 20s.; earthenware 10s.

Baltimore—Dead weight 15s. to 20s.; fine goods 20s.; hardware, 20s.; earthenware 10s. New Orleans—dead weight 12s. 6d. to 15s.; fine goods 17s. 6d.; hardware, 15s; earthenware, 7s. 6d. per ton.

After the first of the present month, the duty will be assessed on the value at the *time* of shipment, and not upon its *cost*.

SALES OF STOCK IN NEW YORK.

	April 2. Sales.	April 9. Sales.
U. S '67 Loan	116	116¼
Erie R.R.	84	85¼
Harlem R.R.	70¼	73¼
Stonington	43	44
L.I. R.R.	24	22¼
Norwich & Wor.	64	65
Del. & Hudson	129¼	125
Reading	56¼	60¼
Morris Canal	18¼	19
Erie income	93¼	94¼
" " Bonds.	103	104
Canton	65	73
Farmers Loan	65¼	66¼

SALES OF STOCKS IN BOSTON.

	April 1.	April 8.
Old Colony Railroad	68¼	68¼
Boston and Maine R.R.	104¼	104¼
Eastern Railroad	102	102
Fitchburg Railroad	111¼	111¼
Michigan Central Railroad	94¼	94¼
Northern Railroad	70¾	70¾
Vermont Central Railroad	34¼	35¼
Vermont and Mass. R.R.	31	30¾
Western Railroad	103¾	102¼
Ogdensburg Railroad	38¼	39¾
Rutland Railroad	57¼	58¼
Boston and Worcester Railroad	103¼	103¾
Rutland Railroad Bonds	97	97
Ogdensburg Railroad Bonds	97¼	97¼
Vermont Central R.R. Bonds	92¼	92
Boston and Providence R.R.	83¾	85
Philadelphia, Wilm'gton & Balt.	29	29¼
Concord R.R.	56	56
Manchester and Lawrence	90	90

Massachusetts Railroads.

We have just received a copy of the reports of the Railroad Companies of Massachusetts for the year 1850, published by order of the Legislature.

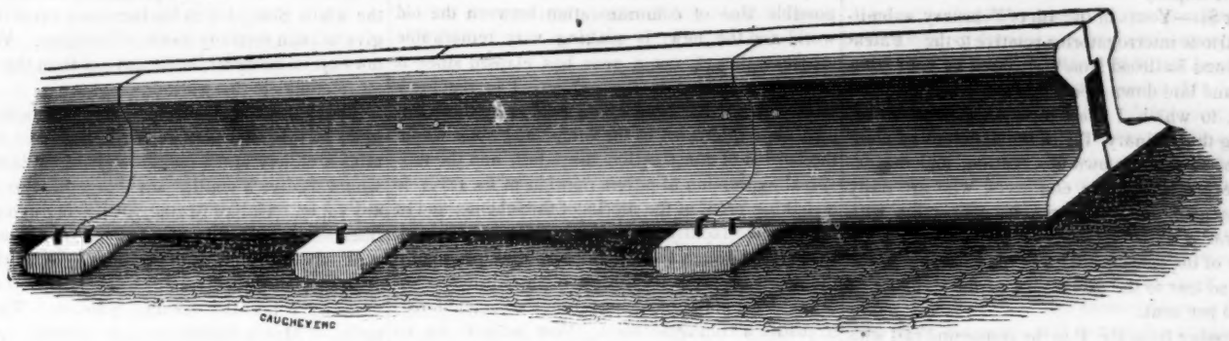
We give below a list of the Railway Corporations in that State, the length of lines built, and the cost of construction. The list embraces 1046 9-10 miles of road, built at a cost of $51,885,556,-46. But to these must be added 74¼ miles of branch lines, making the aggregate 1121¼ miles of finished road, built at an average cost of $43,830,01 per mile. But from this aggregate of Massachusetts roads there should be deducted 43 miles of the Cheshire road, lying in New Hampshire, 38 miles of the Boston and Maine Road, lying in New Hampshire and Maine, 5 miles of the Nashua and Lowell Road, lying in New Hampshire, and 10 miles of the Vermont and Massachusetts R. R., making 96 miles in all. Deducting these from the 1121¼ miles we have an aggregate length of Railroads in Massachusetts of 1025 miles:

	Length of line. Miles.	Cost of road and equipment.
Berkshire railroad	21	$600,000 00
Boston, Barre and Gardner		
Boston and Lowell	25.7	1,945,646 68
Boston and Maine	74.6	4,021,606 59
Boston and Providence	41	3,416,232 51
Boston and Worcester	44.6	4,882,648 23
Cape Cod Branch	27.3	626.543 21
Charles River Branch		
Cheshire	53.6	2,738,318 10
Connecticut River	50	1,798,855 38
Dorchester and Milton	3.3	132,171 72
Eastern	38	3,120,391 67
Essex	19.8	537,869 01
Fall River	42.2	1,068,167 01
Fitchburg	50.9	3,552,282 59
Fitchburg and Worcester	13.9	259,073 93
Framingham Branch		
Grand Junction Railroad and Depot Company	6	678,116 31
Hartford and New Haven	5.8	171,152 65
Harvard Branch	3.6	26,213 02
Lexing'n and West Cambridge	6.6	242,160 86
Lowell and Lawrence	12.3	333,254 42
Medway Branch		
Midland		
Nashua and Lowell	14.5	651,214 88
New Bedford and Taunton	20.1	498,751 68
Newburyport	8	106,825 31
New London, Willimantic and Palmer	9	180,000 00
Norfolk County	26	1,060,990 04
Norwich and Worcester	17	772,105 90
Old Colony	37.2	2,293,534 83
Peterborough and Shirley	14	272,646 96
Pittsfield and North Adams	18.6	443,677 68
Providence and Worcester	27	923,288 10
Salem and Lowell	16.8	316,942 82
Saugus Branch		
Southbridge and Blackstone		
South Reading Branch	8.1	231,601 33
South Shore	11.5	420,434 03
Stockbridge and Pittsfield	21.9	448,700 00
Stony Brook	13.1	265,526 73
Stoughton Branch	4	93,433 29
Taunton Branch	11.1	307,136 29
Troy and Greenfield		
Vermont and Massachusetts	69	3,192,021 54
Waltham and Watertown		
Western	117.8	8,032,813 83
West Stockbridge	2.7	41,516 29
Worcester and Nashua	39.6	1,282,691 04
	1046.9	$51,885,556 46

Michigan.

Southern Railroad.—This railroad was opened the 10th inst. to Sturges Prairie, 117 miles from Toledo and Monroe, on Lake Erie. This road will be completed to the Indiana State-line by July, and to South Bend, at the Northern Indiana road, in August.

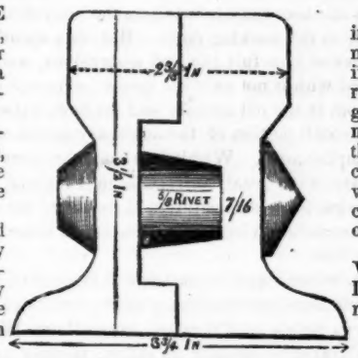
PATENT COMPOUND RAIL.



THE UNDERSIGNED NOW OFFERS TO THE Railroad Public a new Compound Railroad Bar, which possesses, as he believes, a decided superiority over every kind now in use. The Cuts annexed will give a good idea of the form of the Rail, and the mode of combination.

The form of the rail now offered is of the simplest construction, involving the use of only two pieces or parts, and these are put together in a manner that makes the Compound Rail equal in strength to any pattern in use of an equal weight.

This Rail has now been in use on the New York and Erie and the Utica and Schenectady Railroads for nearly two years, and has proved itself to be a *durable* and *continuous* rail, realizing the advantages of a theoretically perfect rail, over the one in common use. He invites the attention of Railroad Companies to a careful examination of the merits of the form now offered.



The advantages of this Rail are: first, it effects a saving of from 25 to 50 per cent. in the wear and tear of the machinery; secondly, it saves to a vastly greater extent in the repairs of track; thirdly, it secures a much higher rate of speed with the same power; and what is of still greater importance, it offers complete protection against most of the accidents to which companies are liable. For these reasons, it is believed to be not only the best, but the cheapest rail that can be used. In enumerating its advantages, the proprietors only repeat the statements of competent persons, who have had the best opportunities of judging of its merits.

Any communications or inquiries addressed to J. F. Winslow, of Troy, N.Y., President of the Mount Savage Iron Works, where the Compound Rail is now being manufactured, will receive immediate attention.

J. F. WINSLOW,

Troy, N. Y. April 8, 1851.

The Compound Rail.

In another part of our paper will be found an advertisement of this rail, accompanied by cuts illustrating its form and mode of combination, which will be readily understood by any person examining them. This matter is now fairly before the public, and we solicit for this improvement the most careful attention.

We had the pleasure during the past week of visiting, in company with a party of gentlemen, representing a number of different roads, the Utica and Schenectady railroad, upon which some eleven miles of this rail has been laid, for the purpose of making a careful examination into its merits. As the rail is laid at some distance from Schenectady, Mr. Vibbard, the superintendent of the road, obligingly placed an engine at our disposal, and to make the trip a still more instructive and useful one, he accompanied the party. The engine, too, was on her first trial trip, and was a beautiful specimen of workmanship, just turned out from the company's shop.

Most of the compound rail in use upon the road, and that portion of it examined by the party, was laid down last fall. Of course sufficient time has not elapsed to show the relative durability of the two kinds. This at present must be a matter of inference from well established facts, showing the influence of the various kinds of wear to which a rail is subjected. In the rail examined, the two parts appear to hold together perfectly. The rivets do not show in the least degree the action of the trains. We learned too that no inconvenience whatever has been experienced from the contraction and expansion of the iron. In riding upon the engine, the different effects produced by the two kinds of track, were what every person, reasoning theoretically, would suppose it to be. Where the track is made up of isolated and unconnected parts, or in other words, where the old rail is used, most of the inequalities of the surface present *angles* to the passage of the trains. With the compound rail, all such inequalities present *curves* so that a smooth and uniform surface is secured; and as the rail is equally strong in every part, the whole track is uniformly acted upon. The passage of the trains has a tendency to correct any inequalities, instead of causing them. All the evidence thus far disclosed is entirely in favor of the compound rail. The objections naturally anticipated do not appear to exist. If the new rail shall be found to be as durable as the other, we apprehend that no railroad man would hesitate between the two. The vast saving in the use of the latter, both in repairs of track and machinery, must give it a decided preference.

We copy in our present paper the letter of Mr. Vibbard, published a few weeks since. We have good reason for believing that it comes far short of his own convictions as to the value of the improvement. His opinions are based upon the working of the rail upon the road under his charge, and the opinion of no man among us is entitled to more confidence, or will carry with it greater weight.—The value of this rail, as well as that of all other new inventions, must be proved by its use. Theory is worth but little without the sanction of practice; and the opinions and experience of such a man as Mr. Vibbard are worth a thousand times more than any reasoning of our own; and it is upon his opinion that we base no small part of our confidence of its success.

While upon this subject we take occasion to express for ourselves, and on behalf of the party which we accompanied on the trip, a sense of our obligations to the Utica and Schenectady R. R. Co. for the facilities afforded us, at no small inconvenience to them, to examine, in detail, their magnificent road, which, in plan of construction, in excellence of finish, and management, is a *model* work, and would well repay a careful examination by any person interested in railroads, however extensive his experience or qualifications. The line of road, to be sure, occupies a remarkably favorable route, both as regards the amount of business, and ease and cheapness of construction. These advantages, instead of leading to an indifference as to the public good, and consequently to that of the company, as is often the case under similar circumstances, have been turned to the best account, and the company have been enabled not only to extend to the public every reasonable convenience, but to secure to the stockholders an ample return upon their investments.

Troy, March 6, 1851.

H. V. Poor, Esq.,

Dear Sir—On the 4th ult. I addressed a note to C. Vibbard, Esq., Superintendent of the Utica and Schenectady railroad, making certain inquiries in relation to the "Patent Compound Railroad Iron" in use upon that road, and which was manufactured at the Mount Savage Iron Works, in Maryland. Herewith I send you for publication a *verbatim* copy of his reply. I think you will agree with me, that Mr. Vibbard's experience with this new form of rail is singularly confirmatory of the advantages claimed for it by you in a series of editorial articles recently published in your Journal, as well as a practical demonstration of the soundness of the views just given to the public in a pamphlet upon the "Defects of Railway Tracks and their remedy, by the adoption of a new form of Railway Bar," by Benjamin H. Latrobe, Esq., Civil Engineer, and which I am glad to see you are transferring to the columns of the Railroad Journal

Very respectfully,

J. F. Winslow,

Pres't. Mt. Sav. Iron Co.

Utica and Schenectady Railroad Office,
Schenectady, March 1, 1851.

J. F. WINSLOW, Esq., President Mount Savage Iron Company.

Dear Sir—Yours of the 4th of February, submitting various interrogatories relative to the "Patent Compound Railroad Iron" furnished by your company, and laid down upon this road, was duly received, to which I shall reply in general terms, making the ordinary T rail the standard of comparison. From my own observation, and the experience of locomotive engineers, who are daily running upon the compound, in connection with the T rail, (which is superior of its kind,) I am clearly of the opinion that there is a saving in the wear and tear to the machinery of the road, of at least 25 per cent.

In passing from the T to the compound rail with the trains, a much higher rate of speed is attained with the same power, which can only be attributed to the non-resistance at the joints. There can be no doubt that a less expenditure of motive power is required upon the compound rail in pulling loads of equal weight, but to what extent I am unable to say.

In November, 1849, about one thousand feet of the compound rail, furnished by you, was laid down in connection with the T rail in the main track, over which all trains passing westward from Schenectady were run.

This part of the track has not been repaired or adjusted, *nor has it required to be,* while the T rail which was laid at the same time, and with great care, has required repeated adjustment. The ten miles of your compound rail laid last fall has also kept in admirable adjustment.

The experience on this road in that respect is the same as upon all others where the T rail is in use.

A very large proportion of the expense of adjusting the track is at the joint or end of the rail, which is caused by the weakness, or break in the track at that point. This defect is entirely obviated by the use of the compound rail, which gives an equal and perfect bearing upon all the cross-ties, thereby reducing the expense of keeping the track in adjustment, more than one half. No part of the compound rail has broken or been thrown out, while a large number of broken and defective bars of the T rail has been removed. Neither has a wheel or shaft broken upon this part of the rail. Higher speed can be maintained with same power, greater safety and comfort to the passengers, the oscillation and noise of the cars being much less than upon the T rail.

No chair is required in laying the compound rail, the saving in expense of which I consider more than equal to the additional cost of rivets and riveting together the bars. Two or three rivets, only, have broken since the rail has been in use, which upon examination proved to have been defective when driven.

Additional experience is wanted to determine the durability of the compound rail, in comparison with the T rail. That the result will be in favor of a compound rail, I see no reason to doubt.

Respectfully,
Your ob't. serv't.,
C. VIBBARD, Sup't.

Rhode Island.

The city of Providence has just voted to subscribe the sum of $500,000 to the Providence, Hartford and Fishkill railroad.

European and North American Railway.

This great project, the object of which is to extend our railroad system to the most eastern boundary of this continent, and to form the shortest possible line of communication between the old world and the new, is making very remarkable progress, though not a year has elapsed since it was first presented to the public. The readiness with which it has been seized hold of by those immediately interested in the route, and upon whom the burden of construction must fall, and the universal expression of public opinion in its favor is a striking proof of the merits of the scheme, and of the extreme facility with which it can be executed. In works of much less magnitude, and promising the most favorable results, it often requires years to mature a plan, and concentrate a sufficient force, to justify a commencement. Few projects are so well conceived, or so strong in themselves, but that years are necessary to bring up the convictions of people to the working point. But this sprung at one bound into full life and dimensions, and has carried with it not only the verdict of public opinion both in the old country and the new, but secured no small portion of the necessary means for its accomplishment. Within less than one year from the date of the great convention in Portland, (the first organised demonstration in its favor,) the work of construction will be commenced on some parts of the line.

The whole length of road now to be built to carry a continuous line of rail way to the eastern portion of Nova Scotia is 470 miles, viz:—From Waterville, Maine, to Bangor, 55 miles; Bangor to Calais, 96 miles; Calais to St. John, 73 miles; St. John to the line of Nova Scotia, 126, thence to Halifax, 120 miles. The construction of the first link to Bangor may be considered as secured by the action of the two connecting Maine roads, in guaranteeing a dividend upon its stock. The Province of New Brunswick has granted aid to that portion of the line through her territory to the amount of $1,250,000, and will undoubtedly increase this if necessary, and we have every assurance that Nova Scotia will adopt a similar policy. The importance of this road is so well understood in these provinces, that we never had a doubt of the early construction of this portion of the line.—The provincial guarantees, which will be readily given to any reasonable amount, will command money in England at the lowest rates, from the great interest felt in that project there. The great eastern division of the line will be completed with all the dispatch practicable in a work of such magnitude.

The only portion of the line which will labor for want of means is that from Bangor to the eastern boundary of Maine. Much the largest part of this distance is through a wilderness, which can contribute but little towards the work. The land on this portion of the route, though valuable, is unsettled, and though it would, in the immense quantities of valuable timber which it contains, furnish a large amount of business to a road in operation, yet it can contribute but little to secure its construction. The principle part of the means for this portion of the line, therefore, must come from parties not immediately interested in property along the line of the route. Upon whom, then, shall this burden fall?

There can be no question to our minds but the State of Maine will extend a large amount of aid to this link by appropriating a portion of the proceeds of her public lands. These she can give, though the State cannot, by the terms of her constitution, contract a debt of over $800,000. She has a strong inducement to this step, not only in the influence it would have in promoting the interests of the whole State, but in the increased value it would give to such territory as she still retains. We cannot expect, however, sufficient aid from that quarter to complete the work.

The State of Massachusetts is to be benefitted still more by this road than even Maine. She still retains a moiety of the public lands in the latter, and would receive a similar advantage in their increased value. Unlike Maine, all her more important interests must be sustained by intercourse and trade with other portions of the country. In Maine, industry is but little diversified—agriculture and ship building being the leading pursuits. The prosperity of Massachusetts depends entirely upon the extent of her intercourse with other sections. She consumes but a very small part of what she produces. The surplus she distributes to every part of the continent, and her profits are measured by the extent and cheapness of her means of transportation. As far as the west is concerned, the trade of which is now regarded by all the Atlantic cities as of paramount importance, Boston is less favorably situated than New York, Philadelphia, or Baltimore. The former has been straining every nerve to overcome her disadvantages of position, by the excellence of her means of transportation. Millions have been expended by that city, the sole object of which was to secure a portion of western trade. These works, though of great advantage considered in their local aspects, have entirely failed to accomplish their primary object. Boston has not, and never can, secure a large portion of western trade. She never can be placed so near the west, commercially, as New York, and trade will follow the cheapest channels with the same certainty as water seeks its own level. For all practicable purposes, Albany is a part of the port of New York, and no temptation can induce western produce, when it has arrived at this point, to cross the Green mountains, in quest of another that offers no greater attractions. Boston is richly repaid for all the roads she has constructed; but the idea of making that city the shipping port of western produce is preposterous. Nature has forbidden this by interposing a mountain barrier, extending from Long Island Sound to the head of Lake Champlain. That city has done well in seeking western outlets for the products of her industry. Time has fully demonstrated that she can never make any part of the west a permanent customer for articles of general merchandise. The growth of her commerce and business are measured by the growth of New England; that of New York by the progress of the whole country. The growth of New York city for the past 5 years has been much greater than the whole population of Boston. The state of trade in that city for two years, compared with that of New York, is a good illustration of what we have stated.

Such we believe to be a correct statement of the relations that Boston sustains to the west. In seeking to extend her trade in this quarter, she is contending against odds that can never be overcome. It is her true policy, therefore, to turn her attention in a direction where she has no rival—to the north and east, where a field vast in extent and resources, is spread out before her, which would richly repay every effort to develope and bring into use.—Boston is the most northern of our leading Atlantic cities. The natural boundary of the territory de-

pendent upon her in the west is the Green Mountain range. All to the north and east of this is the legitimate field for her enterprise and her business; and her growth must always be in exact ratio to to that of the territory we have named.

It is with a view of her true interests that the State of Massachusetts should act upon the petition, now before her Legislature, to aid that portion of the great line of railroad before spoken of, running through the eastern part of Maine. The propriety of granting aid to this work resolves itself simply into a question of *profit*. Will the advantages to be derived from the opening of this line be greater than the amount of aid that Massachusetts is called upon to furnish?

The territory naturally dependent upon Boston for a market, embraces Massachusetts, a small portion of Connecticut and Rhode Island, one-half of Vermont, the States of New Hampshire and Maine, and the Lower British Provinces, making an entire area of about 110,000 square miles, with a population of 2,700,000 souls. With an equal number of inhabitants to the square mile that we now find in Massachusetts, this territory would contain a population of nearly 14,000,000. That the average of the whole is equal to that State, in point of natural resources, there can be no question. The line of the European and North American railway traverses, for its whole length of 470 miles, not only one of the most fertile, but one of the richest mineral districts on this continent, some portions of it capable of supporting as dense a population as any part of Great Britain, almost the whole of which is at the present time covered with a dense forest.

There is no portion of this country, upon which a railroad would exert a greater influence in developing its resources, increasing the number of inhabitants, in stimulating the growth of villages and towns, and in creating a market for the products of the manufacturing establishments of New England, and in giving employment to, and stimulating the growth of her commercial marine. If the completion of this work can be secured by the appropriation of $500,000 on the part of Massachusetts, she can make no investment that will yield so profitable a return. This road would accomplish more for Boston than all the roads, the objects of which have been to connect her with the west. If Maine, New Brunswick and Nova Scotia contained the average population of the rest of New England, Boston would number twice its present population, with a business three times as great as she at present enjoys. This road, too, would again place Boston ahead of New York in the receipt of foreign intelligence, and secure to are all the advantages to be derived from such a position.

For the reasons stated, we are convinced that, could the people of Massachusetts fully appreciate the benefit they would derive from the construction of the above line, they would not hesitate in extending to it any aid necessary to its completion; more especially as the whole projeet can be realised, by assisting in the construction, of a very small portion of the line.

Pennsylvania.

Reading Railroad.—The Spring and summer arrangement of passenger trains on the Reading railroad went into operation on Tuesday last, the 1st inst. Two trains now run each way, daily, (Sundays excepted) both carrying the mails. The morning lines leave Pottsville and Philadelphia at 7½ o'clock, passing Reading for Philadelphia at 8 o'clock, 57 minutes, and for Pottsville at 10·07.—The afternoon trains start from each end of the line at 3½ o'clock, and pass Reading, for Philadelphia at 4·57; and for Pottsville at 6·07. The following are the reduced rates of fare on the railroad, viz:—

	1st class.	2d do.
From Pottsville to Philadelphia...	$2,75	$2,25
" Reading to " ...	1,75	1.45
" " to Pottsville.....	1,05	85

Railroad Law.

In the Supreme Court at Boston, Monday, judgment was given for defendants on demurrer, in the suit ot the Boston and Lowell railroad, against the Boston and Maine railroad. The plaintiffs claimed large damages, because the defendants who formerly entered the Lowell road at Wilmington, and thence came to Boston, had obtained a charter from the Legislature and entered the city by a separate route, thereby putting the plaintiffs to great loss after they had been to considerable expense to provide accommodations for this increased travel.—The defendants urged that the plaintiffs failed to provide sufficient accommodations; that the tolls were too high, and that they could not come into the city without stopping at Wilmington, which they did not desire to do.

New York.

Long Island Railroad.—The following gentlemen have been elected directors of this road for the present year:—Moses Maynard, Jr. Luther C. Clark, John Paine, New York; Charles R. Marvin, Brooklyn; Wm. A. Smith, Richard Varick, New York; Enoch W. Clark, Philadelphia; Robert Farley, Boston; Earl P. Mason, Providence; A. G. Thompson, Jr., Charles Jeffrey Smith, Isaac E. Haviland, Long Island; Cornelius McCoon, New York. We believe Messrs. Paine, Marvin, E. W. Clarke, Farley and Mason are now members. Under the new management the affairs of this road are prospering beyond expectation. A spirit of accommodation towards the public has been evinced which has met by a largely increased patronage. The more frequent trains put on have proved the usual result of a larger travel, which will be still further increased when the heavy rail is down between Brooklyn and Jamaica.

Quebec andRichmond Railway.

The Quebec and Richmond railway occupies a very prominent position in the Canadian system of railroads—from the fact, that while it will furnish to Quebec, through its connection with the Portland and Montreal railway, the shortest access to the sea, it will also secure the most direct line between the cities of Quebec and Montreal—in less distance, even, than by steam navigation on the river St. Lawrence.

The charter granted in 1845, by the Parliament of Canada, for the Portland railway, authorised the same company to construct a branch line to Quebec. The passage of the Facility Bill in 1849, giving the Colonial guarantee toward certain trunk lines not less than 75 miles in length, led the friends of the Quebec branch to apply for an independent charter in 1850, which was finally granted in August of last year.

Active measures have since been adopted, to carry out this work under the new charter, and the company last fall appointed A. C. Morton, Esq., the Chief Engineer of the Atlantic and St. Lawrence railroad, to make the surveys of the line. As soon as the surveys of the European and North American railway, made under the authority of the Legislature of Maine, were completed by Mr. Morton, he transferred the principal parties engaged in that survey to the Quebec line, who are now actively engaged in that service. R. T. Bailey, Esq., who had charge of the field service in the surveys of the great eastern line in Maine, is at the head of the party on the Quebec survey, under Mr. Morton. We are gratified to learn that by the energetic exertions of Mr. Bailey, the survey will be completed at an early period in the spring, and that there is every assurance that a most favorable line, both as to directness and gradients, will be obtained.

The corporation of Quebec propose to take £100,000 in this line, and parties in England have agreed to take a good portion of the stock. These sums, united to the local subscriptions at Quebec, and along the route, will secure the completion of the line to a point that will touch the government guarantee, under the Facility Bill, before spoken of.

This enterprise is clearly one of the most promising ones of the day. The population of Quebec is rising 40,000, and that of Montreal over 50,000. Those who know anything of the summer travel between the two cities cannot doubt the value of the stock on those portions of the two lines which form a connection between the two cities. Quebec is by far the most interesting locality of the continent, excepting Niagara Falls. Its commanding military position, its prodigious fortifications, and the historical associations connected with it, will always conspire to make it the favorite resort of the pleasure tourist—while the trade of that region is destined to make rapid progress under the new influences brought about by the free navigation of the St. Lawrence river.

Vermont.

Western Vermont R. R.—The line of this road leaves the Rutland Railroad at Rutland, and thence runs south, up the valley of Otter Creek, passing through the towns of Rutland, Clarendon, Wallingford, Danby, Mount Tabor and Dorset, to the summit between Otter Creek and the Battenkills; traversing the valley of the Battenkill, it passes through the towns of Dorset, Manchester, Sunderland, Arlington, Shaftsbury and north part of Bennington, to the State Line, (53 9-10 miles) where it connects with the Troy and Boston Railroad. When finished it will form a connecting link in the great chain of railway 380 miles in extent, stretching from New York to Montreal; and will present the shortest and most feasible route between the Rutland and Burlington road, and the valley of the Hudson. This will secure to the line the business of a country rich in mineral and agricultural resources. Besides which, no inconsiderable portion of freight from the Rutland and Burlington road, having for its destination the valley of the Hudson, must take the Western Vermont road as an outlet to a market, as freight over any parallel route through New York, is compelled to pay Canal tolls.

The whole line was placed under contract in October 1850. Twenty-three miles extending from Rutland south, is to be finished and ready for superstructure by the first of next September. The remainder will be completed by the 1st of October. The estimates of cost are as follows: for grading, masonry and bridging, 58 3-10 miles, $6,060,90 per mile, $353,583,75; land, damages and fencing, $67,840; 65 miles of superstructure, including turnouts, at $5,300 per mile, $344,500; Depots,

Engine Houses, Way Stations, &c., $38,000; other items of equipage, including expense of Engineering and Superintendance, $29,700; or a total of $833,623,75. To this sum must be added cost of Engines &c. as follows: five 18 ton Engines, $32,500; five 22 ton Engines, $35,000; six long passenger cars, $12,000; three long baggage cars, $2,400; one hundred 8 wheel freight and platform cars, $65,000; hand and gravel cars and one snow plow, $7,100; or a total of $154,000. This would make the whole cost of the road, in running and business order, $987,623,75; or $16,911 per mile. It is believed that the road, according to these estimates, will cost less than that of any other constructed or constructing in New England, while it will be in every way as well built.

In addition to the main line, the company is also constructing a branch of 4½ miles from North Bennington to Bennington.

For the country traversed, as well as a large part of Vermont, the above offers the shortest and best route to the Hudson River, and consequently to New York. For its whole course it follows a valley between two ranges of the Green Mountains, and which, in Iron, Marble and other valuable minerals is one of the richest districts in the country. The marble alone would give a large business to this road. This article, of which a large quantity is sent to market, is now taken at great expense over ordinary roads, by teams, to the Champlain Canal. In many other respects the business prospects of the road are very flattering.

The means of the company are ample to prepare the road for the iron. For this they rely, as do all new projects, upon an issue of bonds. The cost of the whole road will be about $1,000,000, only 400,000 of which it is proposed to borrow. When we recollect that the debts of many of the New England roads are greater than the whole cost of this, the value of the security offered by these bonds will at once be seen. The estimates of the cost of the road is made up of contract prices, and though one quarter of the grading is taken in *stock*, yet there was hardly an appreciable difference between bids for entire cash, and those for cash and stock.

The directors of the company are Myron Clark, Robinson Hall, A. R. Vail, W. A. Cochran, M. C Deming, P. L. Robinson, A. P. Lyman, Solomon Foote and Lemuel Bottom, Directors. W. B. Gilbert, Chief Engineer.

Railroad Spikes, Wrought Chairs and Fastenings.

THE subscribers continue to manufacture, with increased facilities, Hook and Flat Head Railroad Spikes and Chairs. The points being FINISHED BY HAND, have a long taper, and sharp point, and are much superior to those made entirely by machinery.

We are also prepared to furnish Wrought Chairs, Clamps and Fastenings of every description, either punched or plain. The best quality of refined iron is used in the above articles, and our prices will be made as favorable as any in the country.

The patent Clinch Spike will be found an improvement to secure the rail at the joints.—They drive in the manner shown and are not liable to work loose.

All communications, addressed to the undersigned, will meet with prompt attention.

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Exchange Place, Baltimore.

To Contractors.

ENGINEER'S OFFICE CENTRAL OHIO R. R.,
Zanesville, March 20, 1851.

SEALED PROPOSALS for the Masonry of a Railroad Bridge across the Muskingum River at Zanesville, will be received at this office until the 15th of May next.

Also for the Iron or Wooden Superstructure of said Bridge, and for draw bridge across the Canal.

Plans and specifications furnished on the 1st of May next. Bidders may furnish their own plans and specifications, if filed at this office prior to that day.

By order of the Board.
ROBERT MAC LEOD,
Chief Engineer.

For Sale.

TWO Locomotive Engines—10½ tons weight, built by Baldwin. Also Four Eight-wheeled Passenger Cars, with side seats, all in good running order. Apply to WM. E. MORRIS,
Office of Philad., Germantown & Norristown Railroad Co., 9th and Green sts., Philadelphia. 3m5

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Atkinson, T. C.,
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Clement, Wm. H.,
Little Miami Railroad, Cincinnati, Ohio.

Cozzens, W, H.,
Engineer and Surveyor, St. Louis, Mo.

Alfred W. Craven,
Chief Engineer Croton Aqueduct, New York.

Floyd-Jones, Charles,
Alton and Sangamon Railroad, Alton, Illinois.

Gay, Edward F.,
Columbia and Philadelphia Railroad, Philadelphia Pa.

Gilbert, Wm. B.,
Rutland and Burlington Railroad, Rutland, Vt.

Gzowski, Mr.,
St. Lawrence & Atlantic Railroad, Montreal, Canada.

Grant, James H.,
Nashville and Chattanooga R. R., Nashville, Tenn.

S. W. Hill,
Mining Engineer and Surveyor, Eagle River, Lake Superior.

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Southwestern Railroad, Macon, Ga.

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Miller, J. F.,
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Morris, Elwood,
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Nott, Samuel,
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Prichard, M. B.,
East Tennessee and Georgia R. R., Cleveland, Tenn.

W. Milnor Roberts,
Bellefontaine and Indiana Railroad, Marion, Ohio.

Roberts, Solomon W.,
Ohio and Pennsylvania Railroad, Pittsburgh, Pa.

Sanford, C. O.,
South Side Railroad, Virginia.

Schlatter, Charles L.,
Northern Railroad (Ogdensburg), Malone, N. Y.

Steele, J. Dutton,
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The House has lately undergone a thorough repair, embracing many valuable improvements, and will accommodate 250 Guests. BARNUM & CO.

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State Assayer's office, 31 Somerset st.
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BAILEY-LANE WORKS, SHEFFIELD,
Manufacturers of Cast, Shear, German, Blister, and
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Of all descriptions, *Warranted* Good.
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Manufacturers of Machinists' Warranted Best Cast Steel *Files*, expressly for working upon Iron and Steel, made very heavy for recutting.

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July, 27, 1849.

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Models of this Track, on the most improved plans may be seen at the Engineer's office of the New York and Erie Railroad.

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Orders are invited; and all inquiries in relation to any of the above articles will receive immediate attention

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THEODOLITES, TRANSIT COMPASSES, and Levels, with Fraunhoffers Munich Glasses, Surveyor's Compasses, Chains, Drawing Instruments, Barometers, etc., all of the best quality and workmanship, for sale at unusually low prices, by
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THE Subscribers, having the selling agency of the following named Rolling Mills, viz: Norristown, Rough and Ready, Kensington, Triadelphia, Pottsgrove and Thorndale, can supply Railroad Companies, Merchants and others, at the wholesale mill prices for bars of all sizes, sheets cut to order as large as 58 in. diameter; Railroad Iron, domestic and foreign; Locomotive tire welded to given size; Chairs and Spikes; Iron for shafting, locomotive and general machinery purposes; Cast, Shear, Blister and Spring Steel; Boiler rivets; Copper; Pig iron, etc., etc.
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August 16, 1849. 1y33

Railroad Iron.

THE MOUNT SAVAGE IRON WORKS, Alleghany county, Maryland, having recently passed into the hands of new proprietors, are now prepared, with increased facilities, to execute orders for any of the various patterns of Railroad Iron. Communications addressed to either of the subscribers will have prompt attention. J. F. WINSLOW, *President*
Troy, N.Y.
ERASTUS CORNING, Albany
WARREN DELANO, Jr., N.Y
JOHN M. FORBES, Boston.
ENOCH PRATT, Baltimore, Md
November 6, 1848.

Railroad Iron.

THE SUBSCRIBERS ARE PREPARED TO take orders for Railroad Iron to be made at their Phœnix Iron Works, situated on the Schuylkill River, near this city, and at their Safe Harbor Iron Works, situated in Lancaster County, on the Susquehannah river; which two establishments are now turning out upwards of 1800 tons of finished rails per month.

Companies desirous of contracting will be promptly supplied with rails of any required pattern, and of the very best quality.

REEVES, BUCK & CO.
45 North Water St. Philadelphia.
March 15, 1849.

LAP—WELDED WROUGHT IRON TUBES

FOR
TUBULAR BOILERS,
FROM ONE AND A QUARTER TO SEVEN INCHES IN DIAMETER.

THE ONLY Tubes of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER & SON, Patentees,
28 Platt street, New York.

Railroad Iron.

THE UNDERSIGNED ARE PREPARED TO contract for the delivery of English Railroad Iron of favorite brands, during the Spring. They also receive orders for the importation of Pig, Bar, Sheet, etc. Iron. THOMAS B. SANDS & CO.,
73 New street,
February 3, 1849. New York.

Glendon Refined Iron.

Round Iron, Band Iron, Hoop Iron,
Square " Flat " Scroll "
Axles, Locomotive Tyres,

Manufactured at the Glendon Mills, East Boston, for sale by GEORGE GARDNER & CO.,
5 Liberty Square, Boston, Mass.
Sept. 15, 1849. 3m37

PATENT HAMMERED RAILROAD, SHIP & BOAT SPIKES. — The Albany Iron Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes from 2 to 12 inches in length, and of any form of head From the excellence of the material always used in their manufacture, and their very general use for rail roads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscribers at the works will be promptly executed.

JOHN F. WINSLOW, *Agent.*
Albany Iron and Nail Works, Troy, N. Y.

The above Spikes may be had at factory prices, o Erastus Corning & Co Albany; Merritt, & Co., New York; E. Pratt & Brother, Baltimore, Md.

AMERICAN PIG IRON.

"POUGHKEEPSIE" brand, Dutchess Co., N.Y.
"GLENDON" brand, Lehigh county, Pa.

Orders for the above two well known brands will be received, and promptly executed, by
J. & L. TUCKERMAN,
69 West St., New York.

Faggotted Car and Engine Axles

FORGED by RANSTEAD, DEARBORN & Co.,
Boston, Mass.

These Axles enjoy the highest repulation for excellence, *and are all warranted.*

Bowling Iron. Stamped B.O.

Railway Tire Bars | Rivet Iron
Locomotive and other Axles | Locomotive Frame do
Boiler Plates | Bars,
and every other description of this superior Iron.

The subscribers, agents for the sale of Bowling Iron, are prepared to execute orders for importation, especially for railway and machinery uses, with despatch from the manufacturers.

RAYMOND & FULLERTON, 45 Cliff st.

Ibbotson, Brothers & Co's CELEBRATED CAST STEEL AND

Best Cast Steel Royal Improved Files, well known as better adapted for Engineers' and Machinists' purposes than any now in use in the United States.

Every description of Square, Octagon, Flat and Round Cast Steel, Sheet, Shovel and Railway Spring Steel, etc., and Steel to order for any purposes—manufactured at their works in Sheffield—and universally known by the old stamp "Globe."

HENRY I. IBBOTSON, Agent.,
218 Pearl st., New York.

Smith & Tyson,,

IRON COMMISSION MERCHANTS,
BALTIMORE.

REFINED Juniata Charcoal Billet Iron for Wire.
Do. for Bridging, of great strength.
Flat Rock, Boiler and Flue Iron, rolled to pattern.
Elba, Wheel Iron of great strength and superior chilling properties. Elba Forge Iron, American Shot Iron, Cut Nails, Spikes and Brads, Nail and Spike rods, Railroad Spikes of superior quality, Wrought Chair plates of any pattern, punched or plain.

WILLIAM JESSOP & SONS' CELEBRATED CAST-STEEL.

The subscribers have on hand, and are constantly receiving from their manufactory,
PARK WORKS, SHEFFIELD,
Double Refined Cast Steel—square, flat and octagon.
Best warranted Cast Steel—square, flat and octagon.
Best double and single Shear Steel—warranted.
Machinery Steel—round.
Best and 2d gy. Sheet Steel—for saws and other purposes.
German Steel—flat and square, "W. I. & S." "Eagle" and "Goat" stamps.
Genuine "Sykes," L Blister Steel.
Best English Blister Steel, etc., etc., etc.

All of which are offered for sale on the most favorable terms by WM. JESSOP & SONS,
91 John street, New York.

Also by their Agents—
Curtus & Hand, 47 Commerce street, Philadelphia.
Alex'r Fullerton & Co., 119 Milk street, Boston.
Stickney & Beatty, South Charles street, Baltimore.
May 6, 1848.

Railroad Iron.

B. O. Railway Tires, Railway Wheels,
Scotch Pig Iron, Tin Plates and Banca Tin,
Muntzs Patent Metal Sheathing,
Baltimore Copper.

Contracts for Rails made on behalf of the manufacturers, for delivery at any ports in the United States, at fixed prices.

Bowling Tires and Tire Bars and Scotch Pigs imported to order.

Muntz's Ship-sheathing, and a general stock of Tin Plates and Banca Tin in store, and for sale by
RAYMOND & FULLERTON, 45 Cliff st.

IRONDALE PIG METAL, MANUFACTURED and for sale by the Bloomsburg Railroad Iron Co.
LINDLEY FISHER, Treasurer.
75 N. Water St., Philadelphia.

Car Wheel Iron.

THE celebrated cold blast "Conowingo" Pig Iron, for Railroad Wheels, Chilled Rolls, etc., for sale by E. PRATT & BROTHER,
Baltimore, Md.

Railroad Iron.

3,000 TONS C. L. MAKE 63½ lbs. per yard, now landing and to arrive.

Also contracts made for future delivery of above superior make English Iron.

300 Tons Banks Best Iron, Round, Square and Flat.
200 " English Bar " " " "
10 " 9-16 Square Iron for Railroad Spikes.

For sale in lots to suit purchasers by
DAVID W. WETMORE.
New York, March 26, 1850. 3m

Railroad Iron.

CONTRACTS made by the subscribers, agents for the manufacturers, for the delivery of Railway Iron, at any port in the United States, at fixed prices, and of quality tried and approved for many years, on the oldest railways in this country.

RAYMOND & FULLERTON, 45 Cliff st.

JOHNSON, CAMMELL & Co's Celebrated Cast Steel, AND ENGINEERING AND MACHINE FILES,

which for quality and adaptation to mechanical uses, have been proved superior to any in the United States. Every description of square, octagon, flat and round cast steel, sheet, shovel and railway spring steel, best double and single shear steel, German steel, flat and square, goat stamps, etc. Saw and file steel, and steel to order for any purposes, manufactured at their Cyclops Steel Works Sheffield.

JOHNSON, CAMMELL & CO.,
100 William St., New York.
November 23 1849.

Bowling Tire Bars.

40 Best Flange Bars 5½x2 inches, 11 feet long.
40 " 5½x2 " 7 feet 8 in. long.
40 " Flat " 6x2 " 11 feet long.
40 " 6x2 " 7 feet 8 in. long.

Now in store and for sale by
RAYMOND & FULLERTON,
45 Cliff street.

Wheel, Forge and Foundry Iron.

LOCUST GROVE Wheel Iron of great strength and superior chilling property.

Balt. Charcoal Forge Iron, from Patuxent, Curtis Creek and Gunpowder furnaces.

Elkridge Foundry Iron, of superior strength and softness. Anthracite and Charcoal Iron from Pennsylvania and Virginia. Gas and Water Pipes, Lamp Posts from Elkridge furnace.

LEMMON & GLENN,
Sm9 62 Buchanan's Wharf, Baltimore.

Railroad Iron.

1650 Tons, weighing about 61 lbs. per yard, 40 tons, weighing about 52 lbs. per yard, and 825 tons, weighing about 53½ lbs. per yard, of the latest and most approved patterns of T rail, for sale by
BOORMAN, JOHNSTON & CO.,
119 Greenwich street.
New York, Aug. 26, 1850.

N.B.—B., J. & Co are also prepared to take contracts for English rails, delivered in any of the Atlantic ports of the United States.

Railroad Iron.

THE Undersigned, Agents for Manufacturers, are prepared to contract to deliver Rails of superior quality, and of any size or pattern, to any ports of discharge in the United States.

COLLINS, VOSE & CO.,
74 South St.
New York, June 1, 1850.

Tredegar Iron Works.

ROLLING MILL FOUNDRY AND MACHINE SHOPS. The undersigned continues to manufacture at his Works in this city (from best charcoal metal) Bar Iron of every description, embracing—Rounds and Squares, from ¼ to 5 inches diameter. Flats, from ¼ to 7 inches, all thicknesses. Bands and Scrolls, all sizes. Boiler plate and Plough Iron. Railroad and Locomotive Axles and Tires. Locomotive Frames, Spikes and Plates. Hoops, Ovals, Half Ovals, Half Rounds, Angle, T, L, and indeed every description of Iron usually manufactured, all of which he warrants to be equal to any made in this country. He also manufactures at his Foundry and Machine Shops all descriptions of Railroad Work, say, Locomotives, Railroad Wheels and Axles complete and ready for the road, Railroad Chairs, etc. Also, Marine and Stationary Engines all sizes, Sugar mills and Engines, Horse mills, and every kind of Machinery usually required for the operations of the country. He has paid particular attention to getting up machinery, etc., for Gold Mine operations, and those in want of such work might find it to their advantage to give him a call. J. R. ANDERSON.
Richmond, Va., Sept. 10, 1850.

CUT NAILS OF BEST QUALITY, BAR IRON (including Flat Rails) manufactured and for sale by FISHER, MORGAN & CO.,
75 N. Water St., Philadelphia.

Car Wheel Iron.

100 Tons "Columbia" No. 2 Cold Blast Charcoal Iron.
300 Tons "Salisbury" No. 1, do. do.
For sale by CHARLES T. GILBERT,
No. 80 Broad st.
New York, Sept. 21, 1850.

Railroad Spikes.

THE subscribers are prepared to make and execute contracts for Railroad Spikes of a superior quality, manufactured by the New Jersey Iron Company, at Boonton. DUDLEY B. FULLER & CO.
139 Greenwich st. corner of Cedar.

S. S. Keyser & Co., IRON WAREHOUSE,

Corner of South and Pratt Streets,
BALTIMORE, MD.

Selling Agents for the Rough and Ready Bar Iron and Elk Boiler and Flue Iron Rolling Mills, Sarah and Taylor Furnaces, and Wrightsville Hollow Ware Foundry, and Dealers in Bar and Sheet Iron, and Cast, Sheer, German, Blister, Spring and Electerised Steel, etc., etc.

Tubes.

The undersigned are in direct communication with the *Birmingham Patent Lap Welded Iron Tube Company*, for the sale of their very excellent and superior Boiler and Gas Tubes in large or small quantities.—These Tubes are sold very extensively in England and on the continent of Europe are sold exclusively by
WM. BIRD & CO.,
Iron and Tinplate Merchants,
44 Wall st., New York
5 Martin's Lane, City, London,
and 140 Buchanan st., Glasgow.

Railroad Spikes, Boiler Rivets, etc.

THE Subscribers, Agents for the sale of James S. Spencer's, Jr., Railroad and Boat Spikes, Boiler Rivets, and Wrought Iron Chairs for Railroads, made at his Works near this city, will execute all orders with promptness, despatch, and of the best quality.

ALSO IMPORTERS of English refined and Merchant bar Iron; Extra refined Car and Locomotive Axles (from 3½ to 6½ inches in diameter); B. O. Locomotive Tire (welded by Baldwin). Also, supply Boiler and Flue Iron cut to pattern or otherwise.—Spring, Shear, and Cast Steel, etc., etc., etc.

T. & E. GEORGE.
Philadelphia, November 14, 1850.

Railroad Iron.

THE UNDERSIGNED, HAVING made arrangements abroad, are prepared to contract for the delivery of Foreign rails, of approved brands upon the most favorable terms.

They will also make contracts for American rails, made at their Trenton works, from Andover Iron, in whole or in part, as may be agreed upon.

They are prepared to furnish Telegraph, Spring and Market Wire; Braziers and Wire Rods; Rivets and Merchant Bars to order, all made exclusively from Andover Iron. The attention of parties who require iron of the *very best* quality for special purposes, is respectfully invited. COOPER & HEWITT,
17 Burling Slip, New York.
February 15, 1850.

Railroad Iron.

THE Undersigned, Agents for Manufacturers, are prepared to contract for the delivery of English, Welsh and Scotch Rails, of any pattern and weight, also for every description of English, Welsh, Scotch, and Swedish Iron, Railway Chairs and Spikes, Rivets, Bolts, Nuts, Washers, Chain Cables, Anchors, Tin Plates, German Spelter, Iron Castings, and every description of Machinery.

WILLIAM BIRD & CO.,
Iron and Tin Plate Merchants,
44 Wall st., New York.
And at 5 Martin's Lane, City, London,
and 140 Buchanan st. Glasgow.
July 27th, 1850.

Railroad Iron.

THE "Montour Iron Company" is prepared to execute orders for Rails of the usual patterns and weights, and of any required length not exceeding 30 feet per rail. Apply at the office of the Company,
No. 73 South 4th st., Philadelphia,
Or to the Agents,
CHOUTEAU, MERLE & SANFORD,
NO. 51 New st., New York.
September, 1850.

Railway Iron.

THE Subscribers will contract to deliver, in the course of the ensuing Spring and Summer, the best English Rails, made by a particular specification, and of any pattern required.

DAVIS, BROOKS & CO.,
68 Broad st.

On hand for sale, English rails of 58 lbs. to the yard, made by particular specifications.

January 10, 1851. 2m

Railroad Iron for Sale.

THE Mansfield and Sandusky City Railroad Co. have on hand from twelve to fifteen hundred tons of American Flat Bar Railroad Iron, weighing 38 lbs. to the lineal yard, which they offer for sale at reasonable rates.

The iron has been in use about four years, and is sound and in good condition. It is 2½ by ½.

It will be ready for delivery at short intervals between the opening of navigation in the spring and the 1st September next.

For further particulars inquire at the office of the company at Sandusky City, Ohio.

C. G. FORBES, President.

December 24, 1850.

UNION WORKS,

North street, opposite the Railroad Depot,
BALTIMORE.

Poole & Hunt,

Manufacturers of Steam Engines and Mill Gearing, Machinists' Tools, and all kinds of heavy and light Machinery.

Also put up *Arrangements of Wrought Iron Pipes* for heating buildings and conveying steam or water.

Castings of every kind furnished at short notice.

Every exertion will be made to insure the satisfaction of customers.

Railroad Lanterns.

COPPER and Iron Lanterns for Railroad Engines, fitted with heavy silver plated Parabolic Reflectors of the most approved construction, and Solar Argand Lamps; manufactured by

HENRY N. HOOPER & CO.,
No. 24 Commercial St. Boston.

August, 16, 1849. 6m33

Railroad Paint.

FOR depot buildings, bridges, burthen cars, wheels and axles, pipes, steam joints, fences, and every description of work requiring protection from the action of the elements. Price per barrel of 300 pounds, nine dollars.

Orders addressed to J. M. HALL, 36 South street, New York, will receive prompt attention.

March 18, 1851. 3m*

To Engineers and Ship Builders.

THE Advertiser is desirous of a situation in a respectable concern, he has acquired a practical knowledge of his business in the establishment of R. Napier, Esq., Glasgow, has since for several years had the management of the works of an extensive Steam Packet Co., for whom he designed and built some Iron Screw Ships, whose capabilities and performances give the highest satisfaction. While acquainted with all the most approved modes of construction of marine engines, he is prepared to submit original designs. In modelling and draughting he has had much and successful experience. Can produce the highest testimonials as to character and abilities from the first engineer on the Clyde.

Address ENGINEER, box 2315 lower postoffice.

Lawrence Scientific School, HARVARD UNIVERSITY,

CAMBRIDGE MASSACHUSETTS.

SPECIAL Students attend daily from 9 o'clock A. M. till 5 o'clock P. M., in the Laboratories, and under the direction, of the following Professors:

Louis Agassiz, L.L.D., Professor of Geology and Zoology. Jeffreys Wyman, M.D., Professor of Comparative Anatomy and Physiology. Henry L. Eustis, A.M., Professor of Engineering. Eben Norton Horsford, Professor of Chemistry.

Instruction is also given by Prof. Peirce in Mathematics, Prof. Lovering in Physics, and the Messrs. Bond at the Astronomical Observatory.

All lectures delivered to under graduates of the College are free to members of the Scientific School.

For further information apply to

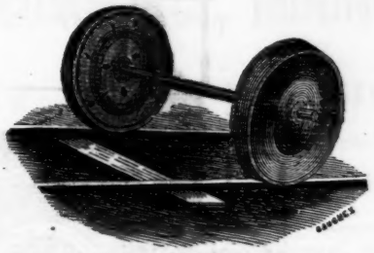
E. N. HORSFORD, Dean of the Faculty.

Boston Locomotive Works,

—Late Hinkley & Drury—
No. 380 Harrison Avenue,
BOSTON.

Locomotive and Stationary Steam Engines; Boilers; Iron, Brass, Copper and Composition Castings; Coppersmith's Work, and all kinds of Railroad Machinery furnished at short notice.

ALSO

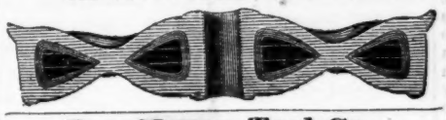


Van Kuran's Improved Rail-Road Wheel,

Patented May 1, 1849. Manufactured under the personal superintendence of the Patentee, as above.

Orders for any quantity of wheels executed with dispatch, and wheels and axles fitted in the very best manner and at the lowest rates. Address

DANIEL F. CHILD, Treasurer, Boston.



Providence Tool Co.,

MANUFACTURERS OF

Plane Irons, Tooth Irons, Soft Moulding and Rabbet Irons, Cornice Irons, Plow Bitts, and Planing Machine Knives:

NUTS, WASHERS AND BOLTS.

—ALSO—

PLATE HINGES AND PICK AXES.

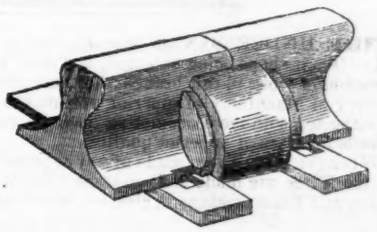
They are prepared to execute orders for all descriptions of Cold Punching and Job Work.

WM. FIELD, Agent. RUFUS WATERMAN, Treas.
PROVIDENCE, R. I.

Railroad Iron,

SPIKES, AND

WROUGHT IRON CHAIRS.



THE Undersigned, Agent for Manufacturers, is authorised to contract for Welsh *Railroad Iron* of the best quality, and deliverable at any port on favorable terms, also *Spikes and Wrought Iron Chairs*, made from the best iron, and of any pattern and weight. The new Wrought Iron Chair, with the introduction of a "Key," as per the annexed plan, will be found a great improvement on the old pattern.

Boiler Plates of superior quality, perfect regularity in the squaring and thickness, and made with great care.

Samples can be seen at the office, No. 20 Beaver st.

CHARLES ILLIUS.

TO RAILROAD COMPANIES, CAR MANUFACTURERS, etc.

THE Undersigned hereby gives public notice, that the Commissioner of Patents, pursuant to his decision in relation thereto, on the 8th day of October, 1850, issued to him a Patent for the sole right to manufacture, and exclusive use of the INDIA RUBBER CAR SPRING, on account of priority of invention of said Spring. F. M. RAY.

New York, Oct. 23, 1850.

Iron Trade of Pennsylvania.

DOCUMENTS and Statistics relating to the Manufacture of Iron in the State of Pennsylvania—giving a history of the manufacture from its commencement to this date, illustrated by diagrams. Also tables giving the address and capacity of every establishment in the State. Prepared by direction of the late convention of the trade held in Philadelphia. For sale by

LINDSAY & BLACKISTON, Philadelphia.
FIELDING LUCUS, Jr., Baltimore.
HENRY G. NICHOLS, 79 Water st., N. Y.
or at this office—price $1 00.

It will be sent by mail to any order enclosing the money, and post paid.

Ulster Iron.

THE ULSTER IRON WORKS, Saugerties, N. Y., continue in full operation. Orders for *round, square, flat, band, hoop and scroll iron*, will be received and promptly executed by

J. & L. TUCKERMAN,
69 West St., New York.

Patent Machine Picket Fence

SIX DIFFERENT STYLES of this fence are now made by patent machinery; and is by far the most economical fence for *Railroads, Farms, Yards*, etc., ever yet offered to the public, costing only from 4 to 30 cents per foot, according to pattern; and is so put up as to be shipped at a trifling expense. Full particulars will be furnished, by addressing the subscriber, to whom all orders should be sent.

N. STRATTON, Troy, N.Y.

Lovegrove's Patent Cast Iron Water and Gas Pipes.

THE Subscriber, the Inventor and Patentee of the Centrifugal mode of giving form to metallic substances while in a molten state, is preparing to make Cast Iron Water and Gas Pipes, of any dimensions, at prices much lower than they can be made in the old manner, and the pipes warranted to stand a pressure of three hundred pounds to the square inch, and to be soft enough to drill. Steam Engines and all kinds of machinery. Cast Iron Doors and Frames, and Mill Castings of every description, made to order.

THOMAS J. LOVEGROVE,
Machinist and Founder,
West Falls Avenue, below Pratt st., Baltimore.

American Railroad Iron.

1000 Tons, weighing 50 lbs, per yard, manufactured by Reeves, Abbott & Co., at the Safe Harbor Iron Works, and now lying in yard at Brooklyn, for sale by

CHOUTEAU, MERLE & SANFORD,
No. 51 New street.

Spikes, Spikes, Spikes.

ANY person wishing a simple and effective Spike Machine, or a number of them, may be supplied by addressing J. W. FLACK,

March 6. 1850. Troy, N. Y

Railroad Iron.

2000 Tons, weighing 58 pounds per lineal yard, of the most approved pattern of T rails, in store and to arrive, for sale by

COLLINS, VOSE & CO.,
74 South St.

New York, June 1, 1850.

India-rubber for Railroad Cos.

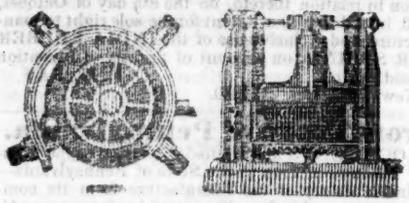
RUBBER SPRINGS—*Bearing and Buffer—Fuller's Patent—Hose* from 1 to 12" diameter. Suction Hose. *Steam Packing* from 1-16 to 2 in. thick. *Rubber and Gutta Percha Bands.* These articles are all warranted to give satisfaction, made under Tyer & Helm's patent, issued January, 1849. No lead used in the composition. Will stand much higher heat than that called "Goodyear's," and is in all respects better than any in use. Proprietors of railroads do not be overcharged by pretenders.

HORACE H. DAY,
Warehouse 23 Courtlandt street.

New York, May 21, 1849.

MACHINERY.

Henry Burden's Patent Revolving Shingling Machine.



THE Subscriber having recently purchased the right of this machinefor the United States, now offers to make transfers of the right to run said machine, or sell to those who may be desirous to purchase the right for one or more of the States.

This machine is now in successful operation in ten or twelve iron works in and about the vicinity of Pittsburgh, also at Phœnixville and Reading, Pa., Covington Iron Works, Md., Troy Rolling Mills, and Troy Iron and Nail Factory, Troy, N. Y., where it has give universal satisfaction.

Its advantages over the ordinary Forge Hammer are numerous: considerable saving in first cost; saving inpower; the entire saving of shingler's, or hammersman's wages, as no attendance whatever is necessary, it being entirely self-acting; saving in time from the quantity of work done, as one machine is capable of working the iron from sixty puddling furnaces; saving of waste, as nothing but the scoria is thrown off, and that most effectually; saving of staffs, as none are used or required. The time required to furnish a bloom being only about six seconds, the scoria has no time to set, consequently is got rid of much easier than when allowed to congeal as under the hammer. The iron being discharged from the machine so hot, rolls better and is much easier on the rollers and machinery. The bars roll sounder, and are much better finished. The subscriber feels confident that persons who will examine for themselves the machinery in operation, will find it possesses more advantages than have been enumerated. For further particulars address the subscriber at Troy, N. Y. P. A. BURDEN.

Railroad Spikes and Wrought Iron Fastenings.

THE TROY IRON AND NAIL FACTORY, exclusive owner of all Henry Burden's Patented Machinery *for making Spikes*, have facilities for manufacturing large quantities upon short notice, and of a quality unsurpassed.

Wrought Iron Chairs, Clamps, Keys and Bolts for Railroad fastenings, also made to order. A full assortment of Ship and Boat Spikes always on hand.

All orders addressed to the Agent at the Factory will receive immediate attention.

P. A. BURDEN, *Agent*,
Troy Iron and Nail Factory, Troy, N. Y.

CHILLED RAILROAD WHEELS.—THE UNdersigned are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of spokes or discs, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

A. WHITNEY & SON,
Willow St., below 13th,
Philadelphia, Pa.

Brown's Old Established SCALE WARE HOUSE,

NO. 234 WATER ST., NEW YORK.

THE Subscriber, Practical Manufacturer of Scales of every description, respectfully asks the attention of Railroad Companies to his Improved Wrought Iron Railroad Track and Depot Scales which for strength, durability, accuracy, convenience in weighing, and beauty of workmanship, are not surpassed by any others in this country.

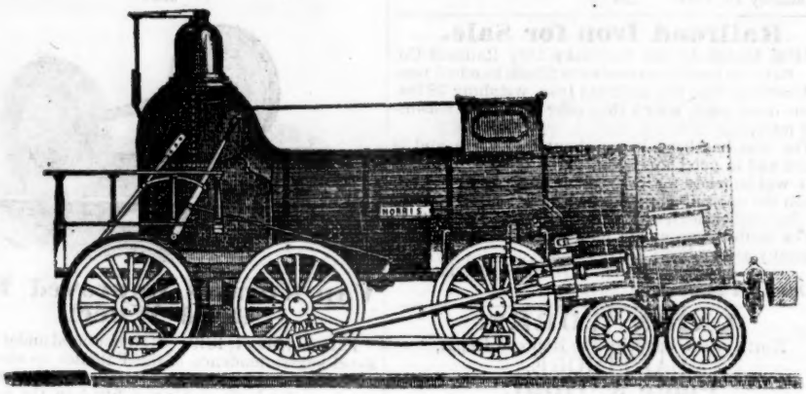
He is aware that this is rather a bold assertion for him to make, yet he can say with confidence that they have but to be tried to give them precedence over all others. J. L. BROWN.

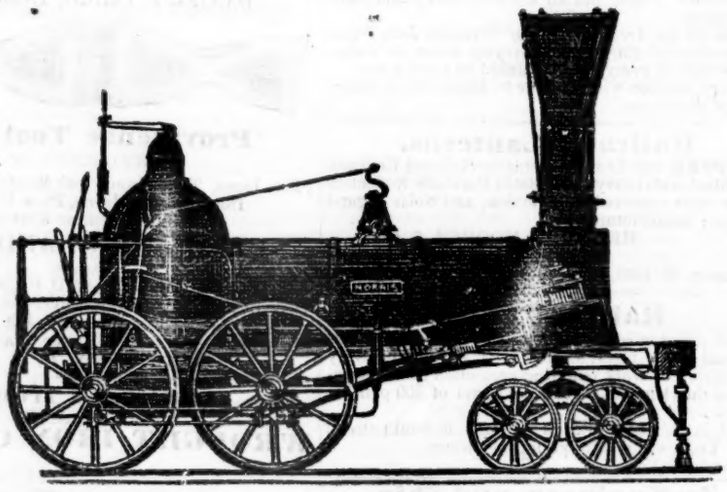
☞ Bank Scales made to order, and all Scales of his make Warranted in every particular.

References given if required.

NORRIS' LOCOMOTIVE WORKS.

BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA,





THE UNDERSIGNED Manufacture to order Locomotive Steam Engines of any plan or size.

Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusual advantages for prompt delivery of Machinery of superior workmanship and finish.

Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality.

Wrought Iron Tyres made of any required size—the exact diameter of the Wheel Centre, being given, the Tires are made to fit on same without the necessity of turning out inside.

Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

NORRIS, BROTHERS

PATENT MACHINE MADE HORSE-SHOES.

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